Locker Plant Combined With a Beer Distributing Business Pays Out

ATLANTIC, Iowa—Combining a locker storage plant with an existing business, and regarding it as an addition to a regularly established revenue rather than as a source of independent profits, is the method of operation most likely to succeed in the small community, in the opinion of Lloyd Hannon, manager of the Individual Cold Storage Locker Boxes plant for Bevington & Johnson Co. here.

Located in Atlantic, county seat of Cass county, a lively Iowa town of about 5,000 people some 55 miles from Omaha, this locker plant has been in operation since December, 1935, was one of the first plants installed in the state.

All of the plant's 345 lockers are occupied. Lockers are home made, consisting of sheet-metal hinged door, front, and sides, with heavy wire screening at top and bottom.

The plant was installed in a former ice cream plant by Bevington & Johnson, using the same machinery and compressor (York ammonia) employed in the ice cream plant. The system is operated in connection with a 15-county beer distributorship.

A SIDELINE

The locker system, from the start, has been more or less of a sideline. The company needed refrigeration for cooling beer, and started the locker system to make use of the extra refrigeration that its machinery was turning out, anyway.

At the beginning, pine chips were used for insulation, but were later discarded in favor of cork when it was found the pine chips were scenting the meat stored in the lockers. Temperatures maintained in the plant are: freeze room, —12° F.; chill room, 35° F.; locker room, 14 to 20° F.

Location of the plant is a help to its business. Nearest plants, at Walnut, Exira, Griswold, and Anita, are at least 16 miles away; and Atlantic, as the county seat, draws patrons even from the territory of other plants. Eight out of 10 of the patrons are farmers.

Rental charges on lockers are $1 a month, or $10 a year. Processing charges were originally set at so much per head, rather than on a pound basis, and have never been changed—principally because customers of the plant wouldn't hear of it.

Present rates for processing are: hogs up to 300 lbs., $1 each, including grinding and sausage making. Over 300 lbs., an extra charge is made, depending upon weight.

Beef, 75 cents each for hindquarters, 50 cents each for frontquarters. This includes cutting, freezing, and wrapping.

Rates given above do not include butchering. Charges for this are $1.50 per head, for beef, $1 per head for hogs. The plant also accepts meat for wrapping and freezing only.

THE MATTER OF PROFIT

To operate a plant successfully, unless the operator is a butcher, it should be run as a side-line proposition, Mr. Hannon says. Profit of the Atlantic plant, he says, has been about $400 a year, hardly enough to justify as a full-time proposition.

If a man can do his own butchering and get a fair turnover, he can average good profits from a locker storage system, Mr. Hannon says—but not otherwise. The plant in this case hires a butcher on a commission basis, furnishing the cutting room and board. The butcher furnishes all the necessary tools.

Having a butcher in a locker plant is almost a necessity—but trying to operate a plant in connection with a butcher shop is a great mistake, says Mr. Hannon. Experience in Iowa has been, he adds, that customers of the locker system get suspicious that the butcher is selling their meat to others who are not using lockers, and a general unfriendly feeling develops.

"The locker plant, for the most part, has not seriously affected the retail butcher in this territory," Mr. Hannon says. "It does, however, replace the 'meat ring'—the name given out here to the practice of farmers to band into groups, usually 24, and agree to butcher meat at regular intervals the year around.

HALTING THE 'MEAT RING'

"By butchering every two weeks or once a month, everybody would have a constant supply of fresh meat. But this didn't work out very well—there were arguments over who would butcher when, and who'd get what parts of the meat killed. Of course, such arguments weren't serious, but the locker storage plant has furnished a satisfactory answer.

"Residents of this territory are largely Danes and Germans—people who eat lots of meat. Getting them started on the locker storage idea was real work, but after that's done everything is comparatively simple.

"But we can't raise our processing rates—our customers won't hear of it, even though we're the lowest plant in the state, and they know it. It pays out pretty well, though, for the butcher gets a big turn-over, and averages about $125 a month. And the plant's full all of the time."

Unless a locker plant operator is a butcher himself, it's best to hire the processing work done on a commission basis, Mr. Hannon states.

COMMISSION TO BUTCHER

"We pay our butcher on a straight commission basis," he says. "He gets everything, but he earns it. He's always around, rounding up business, doing butchering (at the farms, not in the locker plant), and working a lot harder than he would if he were on a salary basis.

"He's on the job more at the plant, too, than a salaried butcher would be. You can't get a man who"ll butcher on Saturday nights on salary, but this man does. He's here Sunday mornings, too. He knows that the more he's here the more processing he's going to do, and the more money he'll make.

"This man sells new lockers, too. We may have to add 50 or 100 new lockers this summer, to keep pace with his sales, and the extra amounts of fruits and vegetables, when the housewives around here get sold on the quick-freezing idea.

"Above everything else, a locker plant makes its money on processing. Our expected profit of $400 is a nice addition to the beer distributing business, but hardly enough to live on by itself. Either you've got to do the processing yourself, or run the locker system along with other things."

As an operating economy, the plant installed hand-operated water valves recently, replacing automatic valves used previously, Mr. Hannon said. The change has reduced water consumption from 15 gallons per minute to around 7 gallons—including the water used for beer cooling. Water bills for the company last year were around $300, Mr. Hannon said. He figures the change to hand-operated valves will halve the water bill for 1938.

'Salesmen Control' Through Central Bureau Keeps Sales Practices Clean In Kansas Town

(Concluded from Page 1, Column 3)

responsible for this year's increase in dealer's sales. Finding no wholesale connection open to him, the price-conscious prospect must either buy from a dealer at retail, or not at all.

An increase of 35% in sales of electric ranges in this territory between May 1 and May 26 also is reported by Mr. Lewellyn as the result of a three-way campaign in which the utility, distributors, and dealers split advertising costs three ways.

Enforcement of fair sales practices is being sought without recourse to a "shopping" service, which, Mr. Lewellyn feels, does not fit the local situation. Instead, the utility acts as a clearing house for accrediting all the city's retail appliance salesmen.

When a salesman is dismissed because of bad selling practices, the dealer reports this to utility headquarters. If he is hired by another dealer, it is with the knowledge that he has been discredited previously.

Gradual elimination of this type of salesman through the central clearing house is a big step toward solution of selling malpractices, Mr. Lewellyn feels. In his opinion, such salesmen do more to disrupt harmony between dealers than any other single factor.

All dealer complaints of chiseling are considered by Mr. Lewellyn's office, provided the complaints are made in writing. This ensures that every complaint will be backed up by actual evidence, rather than hearsay or inter-dealer wrangling. Most chiseling charges dissolve in the face of this requirement, Mr. Lewellyn finds.

One such case of actual chiseling has been brought to light, and the complaining salesman was paid the commission which went to a competitor as a result of price-cutting.

Kelvinator Preparing To Extend 'Crusade'

(Concluded from Page 1, Column 3)

men in all parts of the country, it is estimated, will be listening.

Reports to Kelvinator headquarters here indicate that at least three large cities are making preparations for their participation in the national sales drive.

In Boston, where the power company and Kelvinator's distributor are cooperating in the campaign, 5,000 salesmen will hear a discussion of the plan on the day before Mr. Mason's telephone address is scheduled. Distributors in Memphis, Tenn., and Kansas City, Mo., also are making extensive plans for cooperation in the drive, it is reported.

New Gibson Distributor

CINCINNATI — Herrlinger Distributing Co. has been appointed Gibson refrigerator distributor in this territory.

Roof Spray Cuts Cost, Sells Conditioner

GRAND RAPIDS, Mich.—Spraying water on the roof of a one-story beauty shop here solved a sales problem for the Advance Air Conditioning Co., according to J. W. Voss, manager.

"When we approached the Stellins Beauty Shop about installing air conditioning last year, we found that while the customer wanted to purchase equipment, financial limitations would not permit the purchase of units to carry the full load," says the dealer.

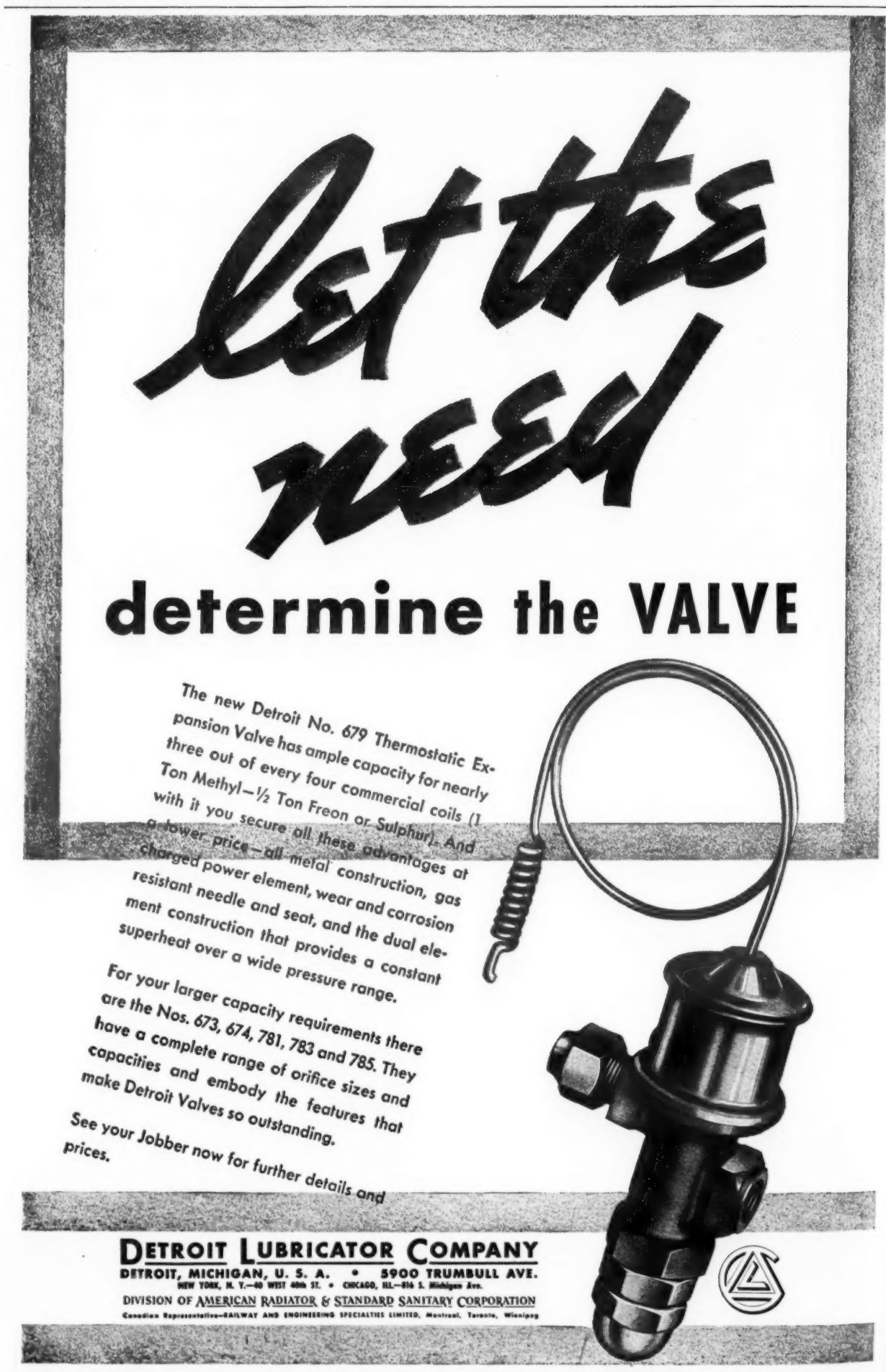
"For this reason, we designed a spray system to reduce the sun load on the roof, and were able to reduce the load to a point where the customer was able to go ahead with the job."

Advance Air Conditioning Co. handles the Westinghouse line of commercial air conditioning in the western Michigan area, and also markets Taylor counter freezers.

Mr. Voss states that sales of Taylor Freezer units have been excellent in recent months.

Sylvester Joins Staff Of Forbes Magazine

DETROIT—Elmer L. Sylvester, who recently resigned as manager of residential air conditioning and automatic heating department of Kelvinator division, Nash-Kelvinator Corp., has accepted a position as midwestern advertising manager of Forbes magazine, with offices in the General Motors building here.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THE COLD CANVASS

By B. T. Umor

Next-Door Static

Big news of the week concerns Philco's entry into the air-conditioning field by taking on a York room cooler. This is probably bigger news than appears on the face of things. And it portends a definite trend toward specialty distribution of air-conditioning products.

Philco also provides big news with its portable radio tuner. This is a small box which, without wires or connections of any kind, will tune a radio from any position and up to 100 feet distance.

Now if Philco could bring out a variation of this product designed to tune or shut off the **neighbor's** radio, dealers everywhere would start getting rich again.

* * *

Yards Are Grand

Mills Novelty Co. of Chicago currently reports more than 200% increase in its refrigeration business over 1937. The sale of commercial compressors, ice cream storage cabinets, and counter freezers, however, is but one division of a mighty big business.

Another division builds automatic phonographs which, for nickels, dimes, and quarters, will play your choice of records. These phonographs can now be operated by a portable box similar to the Philco radio tuner. You just ask the waiter for the box, drop your coin in it, and select your radio without leaving your seat or your beer.

Biggest end of the business operated by the enterprising Four Mills Brothers (they are not, of course, the quartet of the same name which took radio by storm a few years back) is the manufacture and sale of every description of slot machine.

Merchandising of these machines brings Mills representatives, in some quarters, into contact with hangers-on around the fringe of the underworld. From these sources it is reported that gangsters now have a new term for a thousand dollars. It is a "yard." The term "grand," which they used to use to designate the same impressive sum, is now entirely obsolete in their realm.

Knowing how thoroughly the term, "grand," became adopted throughout the English-speaking world, it might be well to note that "yard" may supplant it in common usage. Come better times, it is possible that some of us might have the opportunity to use it.

* * *

"The world is full of pessimists," says Dave Fifield in General Refrigeration Corp.'s News-Of-The-Week. "One guy we know says his business is running 57% ahead of next year."

* * *

Not Bank Night

One thousand dollars cash in return for a 50-cent investment! Sounds like "Bank Nite," doesn't it? But that's the offer which Herbert Wilson, head of a Chicago appliance dealership, was unwittingly making when he recently tried to sell an old ice box for just half a dollar.

The ice box contained $1,000 in currency!

Mr. Wilson had received the box from Mrs. Lucy Panka, a widow who operates a Chicago rooming house, as a trade-in on a new electric refrigerator which Mrs. Panka had purchased from him.

After futilely trying to sell the box for as low as 50 cents, Mr. Wilson threw it out in back of his store in the hopes that some junk man would haul it away. But nobody did, so finally he told one of his employes to break it up for kindling. As the box was being destroyed, an envelope

(Concluded on Page 2, Column 4)

Philadelphia Sales For First Quarter Were 11,746 Units

PHILADELPHIA—Sales of household electric refrigerators in the Philadelphia territory during the first three months of the year fell 36% below those for the comparable period of 1937, according to reports by distributors and dealers to Philadelphia Electric Co. Sales for the first quarter this year were 11,746 units, as against 18,305 units last year.

Retail value of sales for the first quarter of the year also were down 35% from the comparable 1937 mark, totaling $2,076,683, as compared with $3,171,313 for the period last year.

Average retail unit price rose $2, however, being $175 this year as

(Concluded on Page 2, Column 1)

Commercial Sales In April 28,013 Units

DETROIT—Sales of commercial refrigerating and air-conditioning equipment to distributors by 14 member manufacturers of National Electrical Manufacturers Association's commercial refrigeration section totaled 28,013 units in April, a drop of 38% compared with the 45,623 units sold in that month last year, but a slight gain over the 27,299 units sold in April, 1936.

Self-contained air conditioner sales continued to lead those for the comparable period of last year during the month, totaling 2,398 units as against 1,224 units in April, 1937. Air-cooled units enjoyed a command-

(Concluded on Page 10, Column 4)

Wisconsin Commission To Probe Utility Selling

MADISON, Wis.—The question of appliance selling by public utility companies, long the subject of legislative battles in Wisconsin, was revived last week with announcement by the state public service commission that it would investigate merchandising practices of the Wisconsin Power & Light Co., electric utility serving central Wisconsin.

Out of a total advertising expense of $91,000, the company reported $12,000 charged against merchandising and jobbing in answer to a questionnaire recently issued by the commission.

"A much larger proportion of the advertisements submitted with the questionnaire appeared to relate to the sale of utility appliances," the commission said.

Certain groups of appliance retailers have unsuccessfully attempted to have household appliance sales by utility companies outlawed by several recent legislatures, contending utility company sales presented unfair competition.

Sterilamps Now Offered For Use In Refrigerators

Two Models Ready For Display Case & Market Cooler Installations

BLOOMFIELD, N. J.—Said to reduce refrigeration operating expense in retail meat stores, as well as mold, trimming, and dehydration losses while preserving meat, a new line of Sterilamps and equipment has been introduced by the lamp division of Westinghouse Electric & Mfg. Co. for use in "Rentschlerizing," name given to the Rentschler-James process of sterilizing through the use of ultra-violet radiations.

The Sterilamps are slender rod-shaped tubes, with effective lengths of 10, 20, or 30 inches. Two types of fixtures have been specially designed for use with them.

SB-30 is designed especially for walk-in refrigerators and other places where ceiling or wall mounting is desirable, and is equipped with a flat Alzac-finished aluminum reflector. SC-30 is an open-type fixture, particularly designed for use in refrigerated display cases.

Both types are complete with sockets, terminal boxes, and necessary hardware for mounting. Special power unit is used for energizing the tubes.

Inquiries regarding the new Sterilamps are being handled through H. J. Hoffman, manager of the special products department, lamp division, Westinghouse Electric & Mfg. Co., Clearfield Ave., Bloomfield, N. J.

Savings to the meat dealer both in lower losses by dehydration and reduced refrigeration costs are claimed by use of the "Rentschlerizing" process.

Practice in the meat industry has

(Concluded on Page 10, Column 1)

Timken Automatic Now In Room Cooler Field

DETROIT—Entrance of the Timken Silent Automatic Co. into the summer air-conditioning field was revealed by the announcement of the new Timken air-conditioning room cooler. Both air cooled and water-cooled models will be offered to franchised dealers and distributors throughout the country, states T. A. Crawford, general sales manager of the company.

The portable air conditioners are equipped with ¾-hp. compressors, having a B.t.u. capacity of 9,100 on the air-cooled model, and 10,500 when water cooled. Units are housed in attractive walnut cabinets, and will be serviced in the field by the Timken organization.

While cooling equipment has been

(Concluded on Page 24, Column 2)

More About Refrigerated Locker Plants

Much information on refrigerated locker storage plants that will be of *particular use* to the refrigeration dealer, salesman, and engineer is published on pages 8, 9, 11, 14, 15, 16, 17, and 20 of this issue of the NEWS.

The suggestions for installing equipment for such plants, published on pages 16 and 17, should be very helpful to those who may be putting in locker plants.

This is the second issue in which locker storage plants have been particularly featured. The first compilation of information was published in the June 1 issue.

ASRE Meeting and Food Conference Open June 20

STATE COLLEGE, Pa.—Subjects of interest to both the refrigerating engineer and the man concerned with every-day problems in the food preservation industry will be combined in the twenty-fifth summer meeting of American Society of Refrigerating Engineers and the Food Preservation Conference following, to be held here June 19 to 23.

Sessions of the A.S.R.E. meeting are scheduled on June 19-21, with the Food Conference opening on the afternoon of June 21 and continuing through June 23. The latter event is being sponsored by Pennsylvania State College, with A.S.R.E. cooperation.

Regular A.S.R.E. technical sessions will get under way on June 20, following meetings of the various committees and the A.S.R.E. Council on the day previous. Gardner Poole, vice president of the society, will chairman the opening session. Papers to be presented include:

"The Ideal Refrigerant," W. L. Knaus, General Electric Co., Fort Wayne, Ind.; "Aspects of Adsorption Dehumidification," G. L. Simpson, vice president, Pittsburgh Lectrodryer Corp.; "Copper Plating in Refrigerating Compressors," E. W. McGovern, E. I. duPont de Nemours & Co., Wilmington, Del.; "From Ice-

(Concluded on Page 2, Column 5)

Frozen Foods Retailing Started In Michigan

By Alfred Jones

DETROIT—Retail distribution of "Birds Eye" frosted foods in Greater Detroit and six neighboring counties has been taken on by Quaker Dairies, Inc., institutional distributor for Birdseye Frosted Foods Corp. in Michigan's lower peninsula, Henry B. Rigby, Quaker president, has announced.

Quaker Dairies has been distributing Birds Eye frosted foods to restaurants, hotels, and similar large-quantity customers for about five years, Mr. Rigby said, and has now decided to add retail distribution.

Five dealers already have been contracted to handle the products, and have been equipped with Birdseye refrigerated display cabinets, signs, and promotional material.

(Concluded on Page 7, Column 1)

Philco Dealers Will Sell York Portable Cooler

May Sell Entire Room Cooler Line In 1939; Radio Models Shown

CHICAGO—Sales hook-up between Philco Radio & Television Corp. and York Ice Machinery Corp., under which Philco this season will undertake national distribution of a single York room cooler model, to be known as the "Cool Wave" and retailing for $400, was announced at Philco's recent four-day convention here, in which radio and radio-phonograph models for 1939 were introduced.

Through its national sales organization, Philco should be able to do an effective merchandising job on the room coolers, it was pointed out at the meeting. Immediate deliveries were offered Philco dealers who wish to enter the room cooler selling field.

E. A. Orth, sales manager of Philco Radio & Television Corp. of Michigan, said that if sales of the single room cooler model materialize as expected, Philco by the first of next year may take on national distribution of the entire York room cooler line.

While this change may affect some of the present distributors of York portable units, it will not affect the distributor set-up on the company's store-cooling units nor the handling of larger contract installations, Mr. Orth said.

(Concluded on Page 24, Column 1)

Reno Moves To Curb Cooling Water Uses

RENO, Nev.—Regulations limiting the use of water for air-conditioning systems to one gallon per minute for each front foot of building were recommended in a caucus meeting of the Reno city council, after evidence was presented to the effect that the discharge water into city sewers was causing an increasing problem.

The proposed ordinance will be drafted along the line of those in effect in other cities, and will also limit the temperature differential to 15° below outside temperature, as a health protection measure.

'Surprise' One-Day Drive In Kansas City Nets $63,900 In Appliance Sales

KANSAS CITY, Mo.—In an intensive one-day selling drive that started with a 7 o'clock breakfast meeting and ended at 2:15 o'clock the following morning, 37 dealers and three distributors sold $63,900 worth of major electrical appliances. The drive was sponsored by the Electrical Association of Kansas City, and was the first one ever held here.

Included in the total was the sale of $4,350 worth of beverage coolers to drug stores, and one sale of 10 ranges, 10 dishwashers, and 10 waste disposal units to a residential builder.

Appliance totals accounted for in the one-day drive included 148 refrigerators, 74 electric ranges, 98 radios, 53 washers, 11 water heaters, 14 beverage coolers, 10 dishwashers, 10 waste disposal units, and four water coolers.

Twelve dealer participants recorded total sales exceeding $1,000 each. Cost of the campaign, $313, was divided three ways: Kansas City Power & Light Co. stood 50%, dealers paid only the cost of Sunday telegrams informing their salesmen of the drive, and distributors assumed the balance.

Sales day opened with a 7 a.m. breakfast meeting, and an "open house" rally at which late sales were reported and plans for later calls made, opening at 10:30 p.m. The drive was a distinct surprise to salesmen—none of them knew anything about it until delivery of their Sunday telegram the day before the campaign.

Salesmen were required to schedule two evening calls, results of which were phoned to the dealer and relayed by him to campaign headquarters. Final sales report came in at 2:15 a.m.

Importance of evening calls was demonstrated by tabulated distribution of sales during the day. Sales by noon reached 17% of the total; by 6 p.m., 46%; by 10 p.m., 70%; by midnight, 94%. Final sale, at 2:15 a.m., was for $454.

Snap and precision with which the campaign was conducted generated enthusiasm from start to finish. All participants wore lapel buttons, and distributors and their men, in fancy paper hats, were "mopper-uppers" on late sales.

J. F. Porter, Jr., electrical association president, opened the drive, mapped out and run off with the guidance of G. W. Weston, secretary-manager. Hollis Doss was campaign chairman.

Philadelphia First Quarter Sales For Past 3 Years

Month	1938 Units Sold	1937 Units Sold	1936 Units Sold	1938 % Incr. Or Decrease Over 1937	1938 Retail Value	1937 Retail Value	1938 % Incr. Or Decrease Over 1937	1938 Average Price	1937 Average Price
January	3,123	3,135	2,532	—.4%	$ 564,097	$ 524,071	+ 8%	$180	$167
February	3,797	6,119	3,657	—38%	664,574	1,076,607	—39%	176	175
March	4,826	9,051	7,668	—47%	848,012	1,570,635	—46%	175	173
Totals	**11,746**	**18,305**	**13,857**	**—36%**	**$2,076,683**	**$3,171,313**	**—35%**	**$175**	**$173**

SALES BY PHILADELPHIA ELECTRIC CO.

Month	1938 Units Sold	1937 Units Sold	1936 Units Sold	1938 % Incr. Or Decrease Over 1937	1938 Retail Value	1937 Retail Value	1938 % Incr. Or Decrease Over 1937	1938 Average Price	1937 Average Price
January	83	96	81	—14%	$ 13,514	$ 18,290	—27%	$163	$190
February	222	191	160	+16%	41,414	36,658	+12%	186	192
March	316	457	372	—31%	58,148	87,763	—34%	184	192
Totals	**621**	**744**	**613**	**—17%**	**$ 113,076**	**$ 142,711**	**—21%**	**$182**	**$192**

Note: Utility sales approximate 5.3% of total sales.

Report covers sales in Philadelphia, Bucks, Montgomery, Delaware, and Chester Counties.

Report includes sales of the following makes: Apex, Coldspot, Crosley, Frigidaire, Copeland, General Electric, Hotpoint, Kelvinator, Leonard, Norge, Sparton, Stewart-Warner, and Westinghouse.

Philadelphia Retail Refrigerator Sales Down Sharply But Average Price Is Up

(Concluded from Page 1, Column 2)
against $173 for the 1937 first quarter.

In only one month, January, did 1938 electric refrigerator sales approach their 1937 counterparts, the report shows. During this month, sales this year totaled 3,123 units, a decline of but .4% from the 1937 total of 3,135 units. Retail value of sales during the same month rose 8% from the 1937 mark, totaling $564,097 as compared with $524,071 for the previous year.

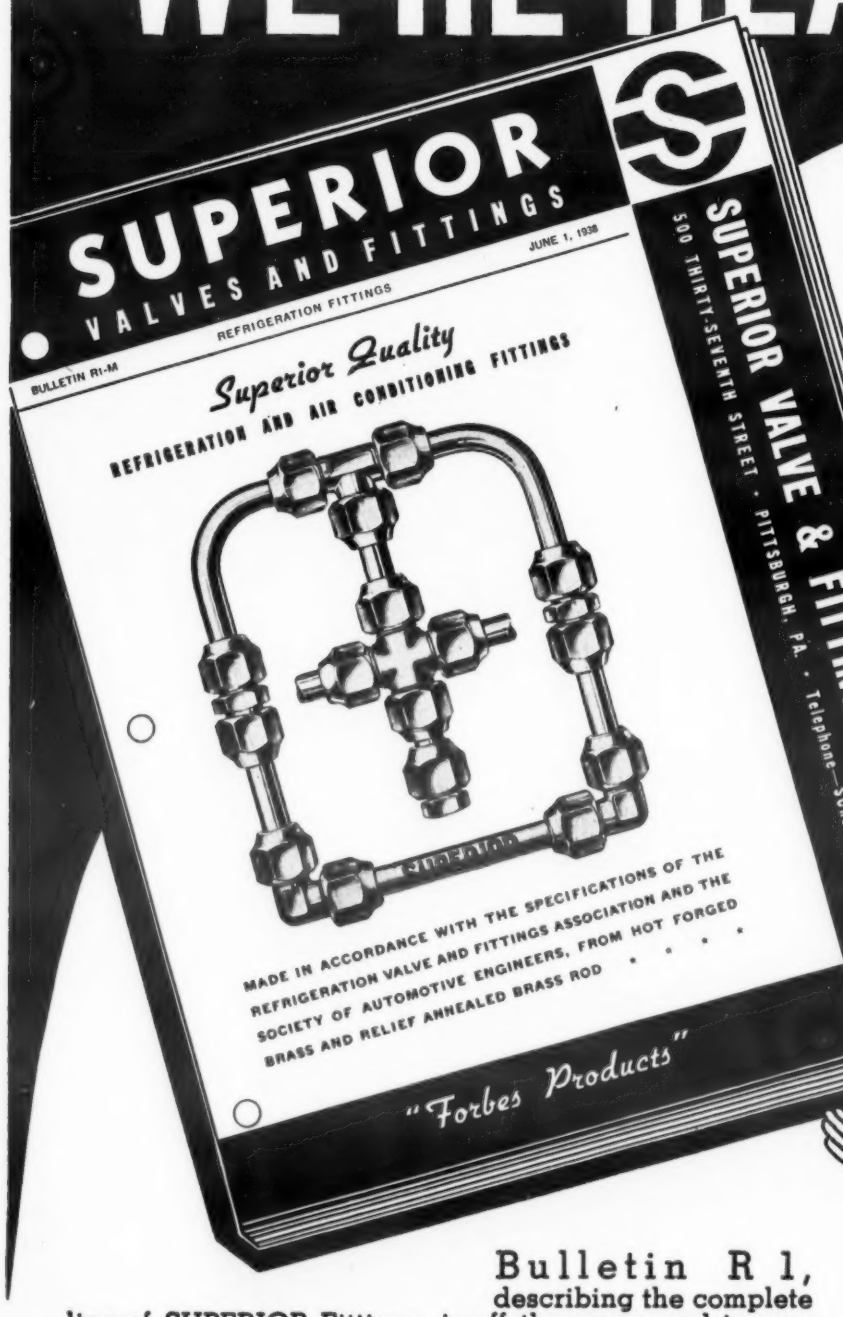
Sales in February were off 38%, totaling 3,797 units as against 6,119 in the month last year, while retail value was down 39%, $664,574 against $1,076,607. In March, sales dropped 47% below the mark for the month last year, totaling 4,826 units compared with 9,051; retail sales value dropped 46%, showing $848,012 compared with $1,570,635.

Sales by Philadelphia Electric Co., which approximate 5.3% of total sales, were down 17% for the three-month period, while retail value of sales was off 21%. Sales totaled 621 units, compared with 744 in 1937.

Utility sales showed gains in both number and value during February, unit total being 222, compared with 191 during the month last year, and retail value being $41,414, compared with $36,658.

The report made to the utility company for the first quarter of the year covers sales in Philadelphia, Bucks, Montgomery, Delaware, and Chester counties.

WE'RE READY!


SUPERIOR
VALVES AND FITTINGS
REFRIGERATION FITTINGS
JUNE 1, 1938
BULLETIN R1-M
Superior Quality
REFRIGERATION AND AIR CONDITIONING FITTINGS
MADE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE
REFRIGERATION VALVE AND FITTINGS ASSOCIATION AND THE
SOCIETY OF AUTOMOTIVE ENGINEERS, FROM HOT FORGED
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Bulletin R1-M
June 1, 1938

to serve you

. . . with a complete line of Refrigerating and Air Conditioning Fittings.

★

"SUPERIOR by name SUPERIOR in Quality"

Bulletin R 1, describing the complete line of SUPERIOR Fittings, is off the press, and is now being mailed. If you have not received your copy of this unique presentation, a request will bring it promptly.

Bulletin R-2, featuring the SUPERIOR Line of DIAPHRAGM PACKLESS VALVES, will be ready soon. Watch for it!

SUPERIOR VALVE & FITTINGS COMPANY
500 THIRTY-SEVENTH STREET ★ PITTSBURGH, PA.

THE COLD CANVASS

By B. T. Umor

(Concluded from Page 1, Column 1)
containing $1,000 in currency was found inside it.

Mr. Wilson promptly returned the money to Mrs. Panka who explained that she had been saving the money for taxes and a mortgage. "I guess I just forgot it was there," she added.

* * *

Coogan Song

Some of the boys have adapted an old song for the special use of Jackie Coogan. It goes like this:

"Mother, can you spare a dime?"

* * *

Hitchhiker

Kansas motorists are laughing over the smart hitchhiker who has been carrying a sign on his back reading:

"If you don't give me a ride I'll vote for him again."

It is reported that he not only gets free transportation, but free meals as he wends through the West.

* * *

Cure For Asthma

A new use for an electric range has been inadvertently discovered by the home economist of the Cleveland Electrical League. A woman called on her a year ago and said that she wanted an electric range installed in her home immediately because her doctor had advised it as a possible cure for her asthma. She'd been having attacks for about 27 years.

Recently, the same woman again called on the home economist and said that she had been greatly relieved of the asthma and that she was enjoying unusually good health. She attributed the improvement to the electric range, explaining that with her gas range she had been affected by the open flame.

* * *

General Electric Supply Corp. in New York City pops up with a claim to having as a star salesman on its staff a "Human Encyclopedia," also known as "The Mental Magician," and officially titled Bernard Zufall.

Some of the feats of memory attributed to Mr. Zufall are really astounding. In comparison with some of the "stunt" tricks he does in his side line occupation as "The Mental Magician," the fact that he has memorized from cover to cover the entire 400-page G-E salesman's handbook with its prices, catalog numbers, specifications, and descriptions seems unimpressive.

With a certain degree of incredulity, Old B. T. U. lists some of the feats with which Mr. Zufall is credited:

He has memorized the Manhattan-Bronx telephone directory of 1,174 pages. He can, after a slight pause for concentration, name the order of a shuffled deck of playing cards. Blindfolded, he can make a complete tour of the 64 moves of a chess knight, touching each field only once, from any starting point suggested.

He has memorized populations of all American cities of 2,500 and over, mileages between principal cities, day of the week of any date back to 1852, and countless other statistics.

At the Patterson Club in Bridgeport, Conn., Mr. Zufall was the star entertainer on the evening's program. He memorized a copy of the Saturday Evening Post and described any page at all upon request. A wise guy in the back row asked him to give the license number of a car in one of the automobile ads.

Mr. Zufall zipped through a momentary brown study, gave the correct license number, and floored the smart aleck by giving the license number of another car which was pictured in a corner of the same ad.

* * *

A Corker

Found in the Chicago telephone directory: DRYZ Edw. P. r. 5312 S; Rockwl—PROspct—4392. He should be in the insulation business.

A.S.R.E. Meets June 20 At State College, Pa.

(Concluded from Page 1, Column 4)
and-Salt to Liquid Helium," Dr. J. G. Aston, State College, Pa.

Afternoon program will include a golf match, with H. M. Roberts in charge; ladies' bridge, with Mrs. F. G. Hechler and Mrs. F. C. Stewart as hostesses; and a smoker and entertainment in the evening.

Program on June 21 will be chairmanned by President Crosby Field, and will include talks on "Refrigeration in Modern Breweries," by George B. Bright, Detroit consulting engineer; "Bacteria and Light," by Dr. Harvey Rentschler, Westinghouse Electric & Mfg. Co., co-developer of the Sterilamp; "Dairy Laws and Practices," by Bion R. East, National Oil Products Co., Newark, N. J.

First session of the Food Conference, opens on the afternoon of June 21.

Papers to be delivered include: "What is the Food Industry?" by Dr. L. F. Burton, editor of Food Industries magazine, New York City; "Consumer Trends in Foods," by Elsie Stark, Best Foods, Inc., New York City; "The ABC of Food Bacteria and Enzymes," by Dr. M. Farrell, Pennsylvania State College; and "Vitamins in Food, Effect of Time and Temperature," by Dr. R. A. Dutscher, Pennsylvania State College.

Second session, on the morning of June 22, will be chairmanned by Deane Perham, and will include discussions of "Basic Thermal Concepts and Refrigerating Systems," by Prof. F. C. Stewart, Pennsylvania State College; "Estimating Refrigerating Loads," by Prof. N. R. Sparks, Pennsylvania State College; and "Air Properties and How They Are Controlled," by Milton Kalischer, Westinghouse Electric & Mfg. Co., Springfield, Mass.

Afternoon session on June 22 will have Dr. Dutscher as chairman, and papers scheduled for presentation include "The Ice Cream Industry," by R. C. Hibben, International Association of Ice Cream Manufacturers, Washington, D. C.; "Milk Cooling Requirements and Equipment on the Farm," by Prof. J. E. Nicholas of Pennsylvania State College; demonstration of the glass evaporator by A. B. Schellenberg, Alco Valve Co.

With C. T. Baker as chairman, the morning session June 23 will hear talks on "Refrigeration Functions in a Packing Plant," by Henry D. Tefft, Institute of American Meat Packers, Chicago; "Precooling of Fruits and Vegetables," by D. F. Fisher, U. S. Department of Agriculture, Washington, D. C.; "Slow and Quick Freezing of Commodities," by D. K. Tressler, New York State Agricultural Experiment Station, Geneva, N. Y.; and "Trends in Cold Storage," by Walter O'Keefe, American Warehousemen's Association, Chicago.

Fifth and final Food Conference session, to be held that afternoon, will have Dr. Burton as chairman, and will include discussions of "Humidity as a Factor in Food Storage," by L. L. Lewis, Carrier Corp., Syracuse, N. Y.; "Farmer's Coolers and Lockers," by J. C. Bergdoll, York Ice Machinery Corp., York, Pa.; "Quick Freezing of Poultry," by Van R. H. Greene.

Automatic Sealtight Seals provide positive seal at all times, regardless of refrigerant. Higher the pressure . . . tighter the seal. Seals on seal nut, not shaft . . . no shaft wear, less spring tension, less power consumption, insures proper lubrication and reduces wear. ¼ H.P. to 25 H.P. models. Write for new catalog.

MERCHANT & EVANS CO.
Phila., Pa., U. S. A. Plant at Lancaster, Pa.

'Keeping House Can Be a Circus' Is Theme Of Los Angeles Appliance Carnival

LOS ANGELES — "Housekeeping can be a circus," if one is to believe the theme of a refrigeration and home appliance carnival sponsored recently by Columbia-Eastern department stores here.

Decorations for this gala affair were quite in keeping with the show's motif. The long lobby extending between the company's two store units was converted into a "big top," with canvas overhead and gay clusters of balloons dangling from the ceiling.

Small electric appliances were displayed on a series of stands, decorated in typical circus fashion, which were placed at intervals down the middle of the lobby. A demonstrator wearing a tall, red, peaked hat and a red and green ruffled apron was in charge of each stand.

Latest models of Kelvinator, Norge, Frigidaire, Leonard, Apex, and Cold Chef refrigerators were arrayed on low blue platforms along both sides of the lobby. All units were placed so that they might be readily opened and thoroughly examined.

Representatives of the different refrigerators were on hand to explain the merits of their particular product and to hand out literature concerning it. If the prospective prospect evinced any interest, his name and address were taken and a personal appointment arranged.

To attract particular attention to the refrigerator display, a life-size papier-mache elephant stood swinging his trunk within a low picket-fence enclosure at the entrance to the lobby. Nearby was a sign requesting visitors not to feed the "animal."

Many of the show windows on either side of the lobby also were devoted to displays of electrical appliances, one showing a group of open refrigerators stocked with artificial food.

The circus atmosphere was carried out in the store's housewares department, too, with 10-ft. red-and-green banners hung from the balcony. These banners were lettered in gold with such slogans as—"Kitchen Carnival," "Keeping House Can Be a Circus," "Something Doing Every Minute," "Greatest Show on Earth-enware," "A Cook's Tour that Costs You Nothing."

Advertisements of the circus poster type were used to publicize the sale. Many of the store's other windows also took on a carnival atmosphere, with balloons, clowns, and brightly colored wooden soldiers attracting youngsters much as a regular circus might. Consequently, many grow-ups were exposed to a refrigerator or appliance sales talk simply because they had brought their children down to see the sights.

Fred Meyer, buyer of housewares and major appliances for Columbia-Eastern, reported that the "circus" provided a welcome stimulus to the store's volume of business.

Under the 'Big Top'

The "big top" where activities in a Los Angeles department store's appliance "carnival" were centered.

Shaffer To Handle G-E

LAFONTAINE, Ind. — Shaffer Radio & Electric Shop has been appointed a full-line General Electric dealership here.

Upstairs Porch Converted Into Display To Attract Passing Motorists

NEW ORLEANS—Something different in the way of display windows has been developed by Conner Radio & Appliance Co. here, by turning an upstairs porch which previously had served no particular purpose into second-floor "display room" which may easily be seen by passing motorists.

When the company recently remodeled its store to obtain more floor space, the store front was altered and the upstairs porch retrimmed as a display room, and given a "front wall" of glass.

Elaborate and interesting displays of radios, refrigerators, and other appliances can now be built in this window, which is especially suited to large-appliance showings. The display also has the advantage of being visible from a considerable distance, especially by approaching motorists.

G-E 'Cost Of Living' Rate Cut From 5% To 3%

SCHENECTADY, N. Y.—General Electric Co. has announced a decrease of 2% in its "cost of living" adjustment plan, effective May 28. The company has been paying 5% since August, 1937. New rate is 3%.

Instituted in October, 1936, the plan provides for automatic changes in employe earnings, based on the progress of the "cost of living" index as published by the U. S. Department of Labor. Index figure announced by the department on May 28 was 83, compared with 84.5 for the preceding three months.

Gaffers & Sattler Acquires Building For Expansion

LOS ANGELES—Gaffers & Sattler, manufacturer of electric refrigerators, gas heaters, and ranges, has acquired a two-story structure at E. 50th & Loma Vista Sts. here for an expansion program. It provides an additional 40,400 sq. ft. of space.

Salesmen Must Stress Added Advantages Of 'Quality' Goods To Cash In On Advertising, Vining Says

HAMILTON, Ont.—Scoring advertisers of quality appliances for failing to follow up the advantages which they create for themselves through their advertising, Vernon E. Vining, director of department store sales for Westinghouse Electric & Mfg. Co., recently offered his views on appliance advertising to the thirty-fifth annual convention of the Advertising Affiliation here.

Manufacturers and merchandisers of shoddy imitations of quality appliances are cashing in on the failure of more reputable organizations to impress upon John Customer just why their products are $2.49 better than the imitations, Mr. Vining declared. As a result, he pointed out, advertisers of quality appliances create the demand; merchandisers of "cheap" appliances make the sales.

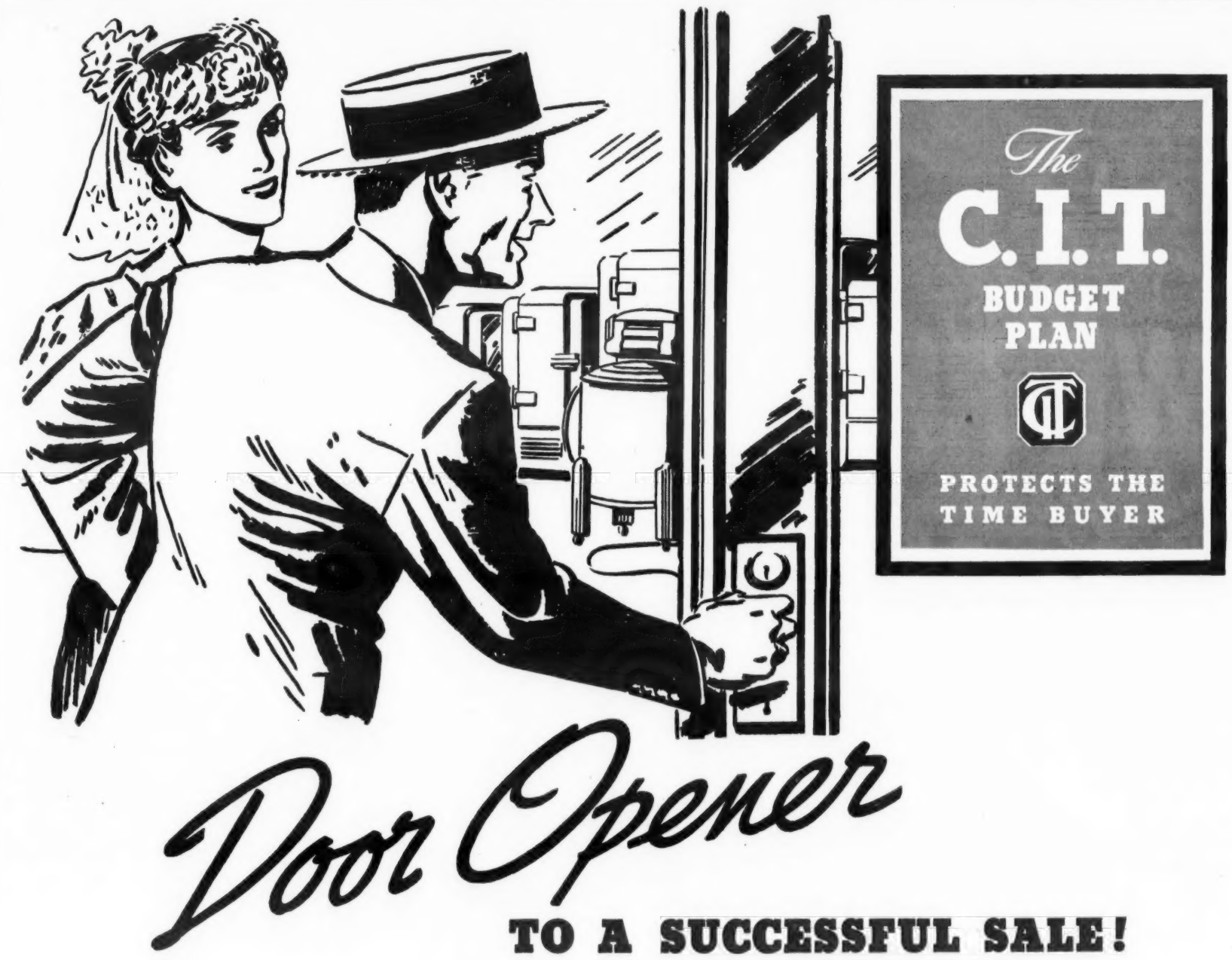
It is little short of a miracle, he added, if anyone pays $5 for a good electric iron anymore, for to reach any place where such an iron is available the prospect must pass at least a dozen places flaunting something "practically as good" for 98 cents.

Mr. Vining admitted that part of the blame was his, for it is his job to educate retail salesmen until they themselves can explain clearly the difference between quality and non-quality merchandise; until they themselves actually know just why a $5 iron is worth $5.

To dramatize this difference, Mr. Vining resorted to his well known electric iron demonstration, in which he prepares an entire breakfast by using excess heat from a cheap iron.

Concerning salesmanship, Mr. Vining emphasized that sales resistance is merely a myth. "Saving money is not the world's greatest business," he said, "and few people are interested in it. Buying is one of the world's greatest pleasures."

He also admonished salesmen not to try to fool their customers.



Door Opener

TO A SUCCESSFUL SALE!

IN ITS MANY YEARS of leadership in sales financing, C.I.T. has won the confidence of millions. Sensible time buyers of major household appliances, such as mechanical refrigerators, ranges, washing machines, room coolers and similar conveniences have relied upon this Plan. They know that it offers standard rates and terms to fit individual budgets, as well as tactful, considerate collection methods.

80% are budgeted

It is generally agreed that at least 80% of the purchases of major household appliances are paid for "out of income." This means that your sales financing service is extremely important. It often is the door opener to a successful sale!

It's to your advantage to be able to say: "You can purchase under the C.I.T. Budget Plan." Customers understand those words.

There are still other important advantages to you in dealing with C.I.T.

—Ample funds for all requirements.

—Tactful, on-the-spot credit investigation.

—Immediate purchase of acceptable paper by local office near you.

—Efficient, friendly collection service.

—C.I.T. service is national in scope and is not subject to local or regional business disturbances.

When you finance through C.I.T. both you and your customers benefit.

C. I. T. is the world's largest independent sales financing institution, established in 1908, and serving dealers and purchasers everywhere through 184 local branch offices. Each branch is a self-contained, fully-functioning unit.

C. I. T.

Commercial Investment Trust Incorporated • C.I.T. Corporation, New York, Chicago, San Francisco
Universal Credit Co. • Canadian Acceptance Corp. Ltd. • Commercial Factors Corp. • William Iselin & Co., Inc. • Meinhard, Greeff & Co., Inc. • National Surety Corp. • Subsidiary companies of
COMMERCIAL INVESTMENT TRUST CORPORATION • ONE PARK AVE., NEW YORK CITY

Specialty Selling Methods

Range Sales Put Veteran Dealer Ahead Of '37, but He Has To Work Harder

DETROIT—Getting your usual volume of major appliance business when times are tough, says Jack Lewis, manager of Wagner Electric Co., Detroit appliance dealership, is simply a matter of working a little harder cashing in on sales that some of your competitors are passing up because they think there's no use trying.

Wagner Electric sells Frigidaire, Westinghouse, and Norge electric refrigerators, and Frigidaire and Westinghouse electric ranges. And sells is the word. The company's volume on electric ranges alone was between 300 and 400 units in 1937, and sales volume in general is up to last year's total so far this year, Mr. Lewis says.

HAVE TO WORK HARDER

But you have to work harder to get the business. And that's where Mr. Lewis thinks his company is in a pretty good position. His salesmen are veterans—all of them have been with the company at least three years, some of the real "old-timers" as long as six or seven—and they're above average in ability. Five of them, including Mr. Lewis, are members of Westinghouse's "Quota Busters" club on their 1937 achievements.

The company has been in the appliance business for 11 years, so business slumps are not a new occurrence to it. At the start, everything was refrigerators . . . but Mr. Lewis doesn't hesitate to say that the electric range is carrying his 1938 burden for him.

For one thing, he says, the electric range is now at about the same stage the refrigerator was a decade ago. You're selling an idea—safe, economical, speedy electric cookery—just as, 10 years ago, you had to sell the idea of electric refrigeration, rather than the product itself.

"Back in the early days of electric refrigeration," said Mr. Lewis, "our hardest job was to sell what few prospects there were on the idea of an electric refrigerator in their homes—on a type of food preservation superior to that which they had been used to. Then we went to work to sell our particular brand of refrigerator.

"Nowadays we try to get the order as soon as we can—after that we finish the selling job, if we haven't had a chance to do it before. In the early days, we could afford to spend some little time selling the prospect on electric refrigeration—nowadays, we don't have any time to waste on non-prospects. If they're not self-sold on electric refrigeration, we look around for somebody else who is.

PRICE BIGGEST THING

"Prospects are plentiful today . . . but both their attitude and our own has changed a lot from what it used to be.

"When a prospect comes into the showroom today, the first thing we wonder is: 'Where's he been before he came in here? Where's he going when he leaves? How much does he know?'

"You see," Mr. Lewis continued, "price is the biggest thing to the customer today. He's not interested in listening to a lot of sales talk from you or anybody else, if he can get out of it. What he wants is an answer to his main question, 'How much?'—and the sooner, the better.

"We used to go into long, 'technical' discussions of what an electric refrigerator was, and how it worked—but not any more. Now we sell the use of the refrigerator, and leave technical things out of it unless the customer particularly asks about them."

All-importance of price in the electric refrigeration selling picture today can be traced to a very definite cause, Mr. Lewis thinks—too many refrigerator dealers.

Is price emphasis, the result of too much competition, killing specialty selling in the refrigeration industry? Mr. Lewis wonders. Distributors may make pious promises, but only something definite in the way of weeding out the "bargain-counter" type of dealer will effect a real remedy, he feels.

STARTED EARLY

The electric range industry is still a comparative infant. Price is not the major factor. So Mr. Lewis and his salesmen are leaning heavily on this appliance for the profit side of their current operations.

This is the company's third "big" year in the range business. Volume sales started up with the store's range display at the Michigan State Fair in 1936, Mr. Lewis said.

Explaining Wagner Electric's success in this field, he went on:

"I guess we were just lucky enough to see the possibilities in the electric range business earlier than some other dealers. At any rate, we've been cashing in on range opportunities ever since then."

How, and to whom, does the dealership sell ranges? Let Mr. Lewis tell it:

CONVERT GAS PROSPECTS

"A good many of our electric range sales are made to people who first come to our attention as prospects for gas ranges.

"Of course, most sales of all appliances nowadays are made through users, either selling them a new appliance directly or finding out prospects through leads they furnish. Our men do very little canvassing—they're kept plenty busy following the leads that users give them.

"We come across lots of people who are thinking of buying new ranges. Because of the price element, mostly, the majority of them think about a gas range— with an electric range something they'd like to own, but too expensive. Or maybe they haven't even considered an electric range.

"When we get one of these people into our store, we sell 'up' to the electric range. And it's not hard to do, with the modern electric ranges.

"There's some difference in price, but that's not hard to get around. We sell our gas range prospects on the electric range's speed, safety, and economy. We tell them here's an appliance they'll be proud they bought, and records from users will back up our claims for speed and economy. The safety story impresses itself on the prospect, so we don't have to work so hard on that.

"It's surprising, the number of people who come in to look at gas ranges and end up by buying an electric range, once you get the electric range story across to them. The difference in price between a good gas range and an electric range is comparatively little, we point out—and it's only a matter of a few cents a month when the sale is financed.

USING THE USER

"And when you've sold a housewife her first electric range, you've got a real booster for electric cookery. The vocal advertising is surprisingly effective. Every visitor to the new owner's home just has to come out into the kitchen and look at the new range. And you can't beat a 'showing' like that for creating a 'buying urge' in non-owners."

Unfavorable business conditions haven't slowed up Wagner's electric range sales much, Mr. Lewis says. One of the most worthwhile exhibits the company ever staged was the one at this year's Detroit Builder's Show. Several sales were made right on the exposition floor, Mr. Lewis said, and salesmen are still working on some of the prospects unearthed there.

SALES AT SHOW

How does Mr. Lewis account for this?

"Well," he says, "I guess maybe it was because we went into the show with the idea that there was business to be had, and that we were going to try our hardest to get it.

"We scheduled our men for definite floor periods—and gave them all to understand that we were in the show to get sales, not just to show our products and hope for the best.

"It worked out for us."

The dealership has solved its used refrigerator problem by housing all used units in a separate showroom, just next door to the firm's regular display floors. Prospects who are interested in used refrigerators are taken into this display room, where there are a number of such units to choose from.

All service work on used refrigerators is handled by one service man, who has the responsibility of seeing that all units are in first-class running order before they are offered for sale.

NO TRADE-IN PROBLEM

The dealership has no trade-in problem, Mr. Lewis says. All used refrigerators traded for are quickly sold, either to customers whose income won't allow them to buy new units, or to the summer-cottage trade. Used refrigerators are just the thing for people who want this convenience for their summer homes for a few months a year.

"When we trade for used electric refrigerators, we try to do so at a price that will give us a fairly quick turn-over on them, after our service man has made all the repairs and adjustments needed to put them into good condition," Mr. Lewis says. "We price the units for re-sale at a figure that will give us a small profit—but we're not in the used refrigerator business, yet, so we're satisfied if we just break even on our trade-ins over a year's time."

Mass Sidewalk Display Proves Successful

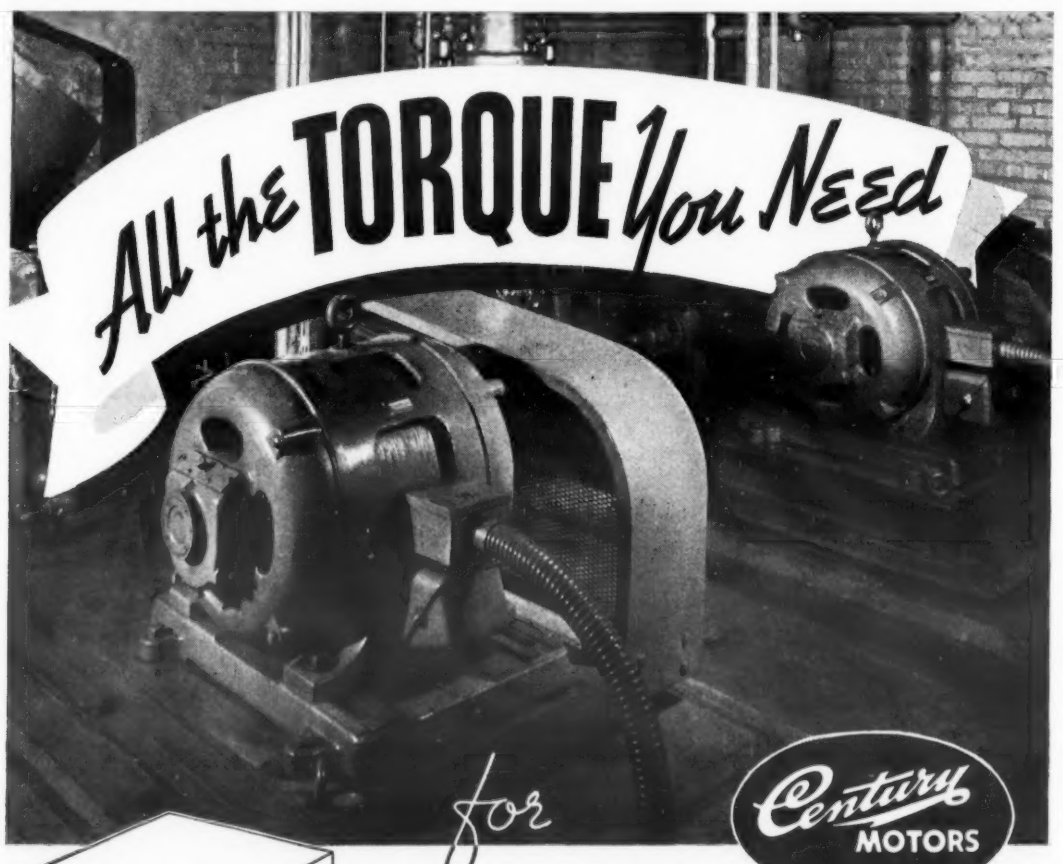
FULTON, Mo.—Utilizing a large shipment of Westinghouse refrigerators as a mass display in front of the store proved to be a successful promotion scheme for Harry and Wallace Backer, owners of Backer Bros., radio and appliance dealership here.

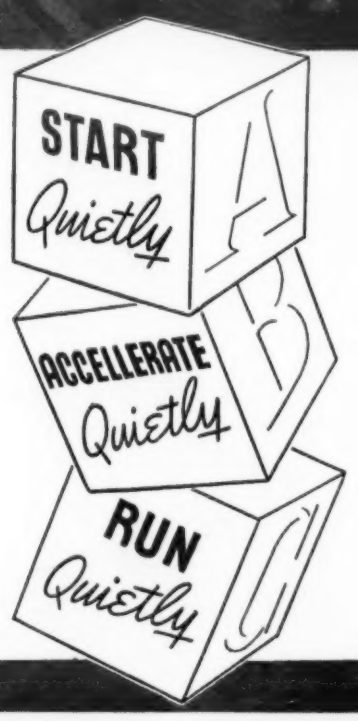
When the shipment arrived, the units in their shipping crates were lined up on the sidewalk, and specially made posters telling the size, price, and "easy terms" credit plan of each refrigerator were tacked onto the crates.

The Backer store being just around the corner from Fulton's public square, the display commanded considerable attention.

Sales of 32 Westinghouse refrigerators were chalked up by Backer Bros. during the first four months of 1938, a creditable record in this town of 6,000 persons.

Hard selling campaigns, prominently featuring house-to-house cold canvassing, have been greatly responsible for the increased business, the brothers assert.





REFRIGERATION COMPRESSORS

Are you paying more for bigger motors than you need?

The problem is this—A refrigeration compressor takes several times as much torque (turning effort) to *start* and *accelerate* the compressor as it does to keep it *running* at full load.

There is a big difference in motors. Century Type SCH Refrigeration Motors have unusually high *starting* and *accelerating* torques in proportion to the the *running* torques.

If you don't get these favorable characteristics you must buy a larger motor at a higher price than you need to pay for a smaller Century Motor at a lower cost.

Get this extra profit by trying this Century SCH Refrigeration Motor on your very next job.

CENTURY ELECTRIC COMPANY
1806 Pine Street • • • St. Louis, Mo.
Offices and Stock Points in Principal Cities

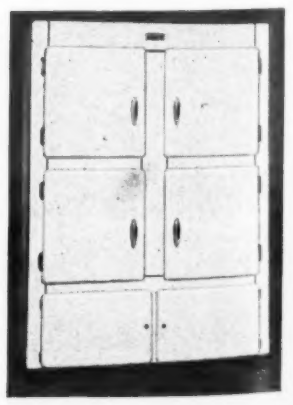
Specify MIDWEST Cabinets

New Models "32" And "46"

- PACKAGE-TYPE
- FLO-E-FEX COOLING
- BEAUTY WITH STURDY CONSTRUCTION
- DULUX EXTERIOR
- PORCELAIN INTERIOR

MODEL 32
NET 32 CU. FT.

MODEL 46
NET 46 CU. FT.



The Best Reach-In Value in America!

Write or wire for prices on these two new MIDWEST PROFIT-MAKERS in the FASTEST GROWING LINE OF HIGH QUALITY REFRIGERATOR CABINETS IN AMERICA! These two new models are ideal sizes for grocery, delicatessen, restaurant, bakery, dairy and many other installations. Latest forced-air cooling with controlled humidity and proper air movement.

MIDWEST MFG. COMPANY—Galesburg, Illinois
SUCCESSOR TO MIDWEST STAMPING & ENAMELING CO.

Export Sales Office, 330 S. Wells St., Chicago. Cable Address, MIDWEST-CHICAGO

Stewart-Warner Introduces New Radios At Lowest Prices In History; Gas Range Shown

CHICAGO—Stewart-Warner's 1939 line of radios, 11 table models and six consoles, all built new "from the ground up," and a new member of its household appliance line—gas ranges—were introduced to distributors from the central, southwest, and west coast territories at a meeting last Tuesday and Wednesday in the Edgewater Beach hotel here.

Distributors in eastern states were shown the new radio and gas range lines at a meeting in Atlantic City June 6 and 7.

Outlining merchandising plans for the radios, Sales Manager John F. Ditzell told distributors that retail prices were the lowest in Stewart-Warner history, ranging from $14.95 to $109.95. Radio production lines have been busy since April 1, he said, and the company is in a position to make immediate shipments on all models.

The company anticipates a volume of radio sales "above the general level of business," Mr. Ditzell told distributors. To most people, he declared, radios have become a necessity, and many obsolete sets will be replaced, regardless of economic conditions. Fewer models, lower prices, and "gadgetless" design all will help Stewart-Warner radios sell in this harder-to-sell market, he stated.

Initial showing of the radios was made by L. L. Kelsey, manager of the radio division, and Fred Johnstone, radio engineer, who introduced and described each model.

All sets have "magic keyboard" push-button tuning; the smallest sets have four buttons, the largest, 10 buttons. All have superheterodyne circuits. Thirteen of the models are for a.c.; four models are for either a.c. or d.c. One of the larger console models has a "magic keyboard" remote control. Chassis have from five to 11 tubes.

Smallest model has a walnut bakelite molded cabinet; is only 13 inches wide and 7¼ inches high, but has a full 5-inch dynamic speaker. The chassis has five tubes, four push-button automatic tuning, operates on either a.c. or d.c., and receives either standard or police band broadcasts. It retails for $14.95.

The new line of gas ranges, introduced on the second day of the meeting, carry the trade name "Sav-A-Step," originally used by the company on its electric refrigerator line. Four models were shown to distributors, varying in floor size from 21½ x 36 inches to 25 x 40 inches.

All have white porcelain finish; three have lift-up cover tops; and the largest model includes such conveniences as oven-heat control, timing clock, electric lamp, condiment set, automatic lighter, oven lighter, two service drawers, drop-door sliding broiler and ribbed pan with gravy well, chrome-lined lift-up cover top, and fully insulated oven.

Distribution will be through regular distributors, Mr. Ditzell said, following the same lines used with radios and refrigerators. Plans for the introduction of other lines of household appliances also were discussed.

Egyptian Movie-Goers To Have Air Cooling

ALEXANDRIA, Egypt—American year-around air-conditioning equipment is being installed in the New Royal motion picture theater to be opened here soon.

Detroit A.S.R.E. Inspects Unusual Conditioning Installation In New Utility Building

DETROIT—Members of the Detroit Section, American Society of Refrigerating Engineers, were guests of the Detroit Edison Co. at a meeting held June 6 featured by an inspection trip through the new air-conditioned glass-block building of the Detroit Edison Co. and a discussion of "Locker Storage Plants" by John L. Hoppe, publisher of "Meat Merchandising" magazine.

Paul G. Heidman, superintendent of buildings for the Edison company, described the theory behind the construction of the new building and the operation of the air-conditioning system.

MORE USABLE SPACE

"Our building is six stories in height," Mr. Heidman said, "but it contains as much usable area as an eight or nine-story building. This was accomplished by the use of unobstructed bays 50 feet deep. It was necessary for the steel engineers on the building to arrange the columns to accommodate the desk layout made for each floor.

"This method of construction would have been impossible without an air-conditioning system. While the system cost approximately $300,000, still it cost no more than the additional stories necessary to attain the same usable space in a building of conventional design.

Six hundred tons of Carrier centrifugal refrigeration serve the Edison building, and all cooling is handled by cold water coils.

Air distribution is by means of a dual duct system, which Edison engineers claim to be the first of its kind in use anywhere. One duct in the dual system carries air below the desired room temperature, and the other duct carries air above this temperature. By maintaining a constant static pressure in both ducts, the air is mixed to give the required temperature by means of a damper floating between the ducts.

Thus if one of the zones in the building calls for cooling, the damper swings across closing the warm air supply, but vortex dampers on the fans automatically regulate the static pressure at a constant point.

NO OUTLET GRILLES

Air delivery to the various rooms in the building is by means of a Burgess perforated ceiling. No outlet grilles are employed as all air filters through small holes in the suspended metal ceilings. At points in the ceiling which are not used for air distribution or lighting, the metal surfaces are backed up with 1-inch rock wool pads for acoustical treatment.

Temperatures in all parts of the building are maintained day and night by a system of air-operated controls. The building contains drafting rooms, the engineering department of the company, offices, a gymnasium, handball courts, and squash courts. The only sections having clear glass windows are the men's lounge, women's lounge, and display windows.

GLASS BLOCK ADVANTAGES

According to Mr. Heidman, heat losses through the glass block walls account for approximately 60 tons of refrigeration load, which is also equivalent to the lighting load in the outer bays of the building.

In other words, if the building were of conventional construction, the building would need 60 tons more of air-conditioning capacity to absorb heat generated by the additional lighting that would be necessary. At present the system is balanced out with no lights burning in the outer bays, as ample light comes through the glass brick walls.

Elected officers of the Detroit Section for the coming year were H. M. Hutzel (Kelvinator), chairman; Ira Reindel (Norge), vice chairman; Frank Riley (Riley Engineering Co.), treasurer; and R. C. Doremus (Detroit Ice Machine Co.), secretary.

Waukesha, Wis. Proposes 'Finger Printing' Of Outside Salesmen

WAUKESHA, Wis.—All house-to-house salesmen ringing doorbells in Waukesha will be finger-printed in an attempt to keep out "fly-by-night" peddlers, if an ordinance proposed by the association of commerce stands test in court and is adopted as law, according to Lawrence L. Bray, secretary of the association.

The finger-printing requirement would affect appliance salesmen, canvassers, milk men, delivery boys, solicitors of all kinds, and all other persons who practice doorstep selling.

"Waukesha is infested with peddlers who annually take $25,000 to $30,000 out of the city," declared Mr. Bray. "The majority of these peddlers sell legitimate goods, but there are some who resort to unethical practices."

Mr. Bray expressed his confidence that the proposed ordinance would successfully stand a test in court. He said the move is not designed to reflect on salesmen for reputable dealerships.

Many salesmen from appliance stores in Milwaukee, only 20 miles away, canvass Waukesha for prospects, Mr. Bray said.

The Waukesha police department is reported to be in favor of the proposed law as a help in apprehending wanted persons.

MINNEAPOLIS-HONEYWELL

POLARTRON

Control System gives you . . .

FROST-FREE
Coils are always automatically maintained frost-free without any manual attention

CONSTANT COLD
Precise box temperatures as low as 32 degrees above zero, without danger of frost

COOLING CONTROL
Any temperature above 32 degrees available merely by finger-tip setting of thermostat

CORRECT CONDITIONS
Produce retain natural moisture when conditions are maintained constantly correct

CUTS COSTS
Frost-free coils effect economy by keeping running time of compressor at a minimum

FROST-FREE REFRIGERATION

FINGER-TIP CONTROL with *Frost Free* Coils at any degree above freezing . . .

THE POLARTRON SYSTEM
Used alone, the Polartron Controller provides new standards of adjustment and safety for refrigeration at any degree

THE POLARTRON SYSTEM provides an entirely new conception of above freezing refrigeration because it approaches the problem from a different angle. . . . Instead of being merely a pressure or temperature switch, or a combination of the two, conventionally applied, the Polartron System consists of a new primary controller and a thermostat. The controller senses conditions within the refrigeration system itself. The thermostat accurately follows each change within the fixture. Their respective functions are interlocked to produce new standards of refrigeration results.

In actual practice, commercial refrigeration has always been difficult. The wide variety of installations, changes in load, service in and out of the fixtures and seasonal weather fluctuations all have presented complex control problems. The limited ability of conventional controls to cope with all of these variables has resulted, in a majority of instances, in the collection of frost on coils—one of the chief ills of refrigeration. Frosted coils not only tremendously handicap the effectiveness of the refrigeration system, but remove moisture from refrigerated products as well, which means an actual loss in dollars and cents when products are resold.

The Polartron System eliminates all these problems. Its extreme flexibility accentuates the limited scope of conventional controls. By the fundamentals of its operation, it even compensates for deficiencies in the refrigeration system itself. Within capacity limits of the refrigeration equipment, the Polartron System will provide precise finger-tip cooling control and frost free refrigeration.

Your customers . . . grocers, butchers, florists, restaurant men and others are waiting for the Polartron System. . . . It will not only modernize existing refrigeration systems, but it is equally effective for new installations. "Polartron" is a year-round business builder for dealers, salesmen and independent service engineers. The Polartron System is truly the answer to all above-freezing refrigeration control problems. Minneapolis-Honeywell Regulator Company . . . 2907 Fourth Avenue So., Minneapolis, Minn. Branch and distributing offices in all principal cities.

The Polartron is covered by issued and pending patents

MINNEAPOLIS-HONEYWELL

NATIONAL PNEUMATIC CONTROLS
BROWN INDUSTRIAL INSTRUMENTS

Control Systems

Air Conditioning

New York Utility, Eight Manufacturers Sponsor Campaign On Cooling

NEW YORK CITY—Eight manufacturers and distributors of portable air-conditioning equipment are cooperating with Consolidated Edison Co. of New York, Inc., this month in a summer advertising campaign which will feature air-conditioning units for offices and homes, states E. F. Jeffe, vice president in charge of sales.

Manufacturers participating in the promotion are Airtemp, Carrier, Delco-Frigidaire, General Electric, Kelvinator, Standard Air Conditioning, Westinghouse, and York.

Advertisements will be inserted in metropolitan New York newspapers, the Journal of Commerce, and a special utility issue of the Wall Street Journal. Releases are timed to break with the first days of hot weather.

Copy used in the advertisements will stress the devitalizing effect of hot weather on the business man. The first release, run in financial papers early in May, urged business men to buy portable air conditioners "Before Hot Weather Makes You Sag."

Prospects are told that "for small offices there are compact portable cabinets that cool, dehumidify, clean, and circulate the air—real summer air conditioning. They filter out much pollen as well as dust, often relieving hay fever. These cabinet-type coolers are also available for homes."

In addition to newspaper advertising, the Consolidated Edison Co. will distribute 25,000 direct-mail pieces, consisting of a catalog in which one page will be given over to the products of each manufacturer participating in the campaign.

Dallas Air-Rite Corp. Will Handle Kelvinator

DALLAS, Tex. — Air-Rite Corp. has been organized here to handle Kelvinator air-conditioning equipment. Officers are L. E. Adler, Jr., president and treasurer; Charles A. Myers, vice president and engineer; and Lynn Henson, secretary.

Air-Cooling Firm Set Up In Grand Rapids

GRAND RAPIDS, Mich. — The United Heating and Air Conditioning Co., a co-partnership, was organized here recently to engage in the commercial and residential air-conditioning business. Associates in the enterprise are Harold R. Sobie, R. E. Cady, and Frank D. Anderson.

Mr. Sobie has been associated with the United Tile and Marble Co., which has served the building industry in western Michigan for a number of years.

Mr. Cady and Mr. Anderson both were connected with the heating division of the Grand Rapids City Gas Co. prior to joining the new firm.

Lines handled by the company will include Kelvinator air conditioning, automatic heating, and residential air conditioning; Roberts-Gordon gas burners, June-Aire furnaces, and the Midwest water heaters.

A sheet metal shop is being operated by the company, with six sheet metal men employed at the present time.

A display room is maintained at 954 Cherry St., S.E., where a complete Kelvin Home package is displayed, together with other products sold by the company.

Detroit Airtemp Branch Reports Upturn

DETROIT—Recent sales of direct-expansion air-conditioning equipment by Airtemp Construction Corp. have increased sharply, according to H. B. Orr, general manager of the Michigan division of the company.

Sales of central-station equipment included Birmingham theater, 100 hp.; Murray Corp. of America, 10 hp.; and Chrysler Corp., 15 hp.

Self-contained unitary conditioning units accounted for a considerable proportion of the company's business. Sales of 5-hp. units were made to Dexter Dairy (offices), Shannon's Grill, Hugh Connelly, Eastman Kodak Co., Bungalow Smoke Shop, and Regal Shoe Store. Room coolers were sold to Dr. Austin Neeb and the Mary Lee Candy Co. One Airtemp matched heating and cooling (3 hp.) unit was installed in the Von Reid residence.

Famous French Architect Believes Conditioning Transforms Living

NEW YORK CITY—What the great French architect, Le Corbusier, thinks about air conditioning is described by George Nelson in a recent issue of "Pencil Points" magazine. An architect of the "functional" school, Le Corbusier has been widely copied and bitterly attacked.

Mr. Nelson makes these interesting observations of the French architect:

"He will talk about air conditioning for hours. He and his group have studied at length. The idea is at the base of his design. Air conditioning is not a gadget you buy and install, it is a method of reaching a new way of living, and has to be designed for.

WINDOWS SEALED

"The first conclusion in designing for it is that windows must be hermetically sealed. He did an apartment house in Paris for 16 families, designed for air conditioning, and considers it a substantial backing up of his theories.

"He told several stories about it. Women, particularly, made a fuss about the sealed windows.

" 'Monsieur l'architecte, I will not live in such an apartment. I cannot open the windows!'

" 'Why, Madame, do you wish to open the windows?'

" 'To be able to breathe God's good fresh air, of course! Why else?'

"AIR IS FILTHY"

" 'But it is not God's good fresh air, Madame, this is the air of Paris. It is filthy, full of coal, of bacteria, of poisonous fumes, of all manner of things that will do you harm. It is, in addition, either too warm or too cold, too dry or too humid. It is bad, this air of Paris. If you don't believe me, go for a walk on any warm day, and look at your handkerchief when you return home.'

"It is a passion with him. One must get good air. He will, at the beginning of a lecture, illustrate a fundamental problem of city planning by drawing a pair of lungs and the sun. Not light and air. Light and good air.

"Only a machine will provide it in cities. It doesn't come in the windows. A machine will give the right proportion of moisture, the right temperature, absolute purity.

CONDITIONS IMPROVED

"Working conditions improved, living conditions improved, increased efficiency as a means of doing work more quickly, so that there will be more time to enjoy life in his ideal cities.

"His sealed apartment house is full, he said, and the lives of the tenants have been transformed, literally transformed. . . . As he spoke his face underwent a sort of transformation. Architecture, to this man, is not a series of monuments to the architect. It is a means of attaining a way of living."

New York City Bank Air Conditioned

NEW YORK CITY—Remodeling of the main banking rooms and offices of the Union Square Savings Bank here included a complete year-around air-conditioning system, according to an announcement by Voorhees, Gmelin & Walker, architects.

Then—and Now

The influence of compact, streamline design on the air-conditioning industry, plus improvements which have made smaller equipment possible, is demonstrated in this picture, which shows the difference between an early model self-contained air conditioner and a 1938 model.

The unit on the left was the first package-type unit developed by the Carrier Corp. The unit on the right—a 1938 model—marks six years development, and shows how the size has been brought down to meet space requirements in residential rooms. The 1938 unit moves on casters, requires no water connections.

The above photograph is being used currently in Carrier's national advertising, with the "40% Off" apparently pertaining to the difference in both size and price of the two units.

23 Systems Installed In Detroit During April Include First Installation For a Church

DETROIT—Twenty-three air-conditioning systems, having a total of 443 connected horsepower, were installed in Detroit during April of this year, according to reports received by Detroit Edison Co. This compares with 27 contracts during the corresponding month of last year, having a total of 1,932 connected horsepower.

Contracts reported included three well-water cooling systems, and one ice-bunker job, the latter being the first church cooling system to be installed in the city of Detroit. Equipment specified for the new Eighth Church of Christ, Scientist, consists of a 13-hp. fan and 7-hp. pump, the work being handled by the E. K. Campbell Heating Co. of Kansas City.

Sales of direct-expansion refrigeration demonstrated tendencies of the trade to install unitary store conditioners on the smaller jobs. Additions to present systems, where refrigeration equipment was already installed, included the Stroh Brewery Co. and the main office building of the Detroit Edison Co. All ductwork and piping in the Stroh Brewery Co. job is made of copper.

A table of the installed equipment reported for April follows:

April Conditioning Installations In Detroit

Direct-Expansion Remote Systems

Classification	Installation	Hp.
Zenith Carburetor Co.	Kelvinator	30
Loop Theater	Carbondale	40
Rivola Theater	Westinghouse	60
Rialto Theater	Westinghouse	60
Nortown Theater	Baker	60
Point Royale Casino	Frigidaire	10
Larry Brown's Cafe	Westinghouse	7½
Detroit Bank	Westinghouse	2½

Unitary Self-Contained Store Conditioners

New-Ark Bar-B-Q	1 Airtemp	5
The Green Hat Cafe	1 Airtemp	5
Eastman Kodak Store	2 Airtemp	6
Penobscot Building	1 Airtemp	3
Regal Shoe	1 Airtemp	5
Colonial Department Store	2 Carrier	6

Room Coolers

Bulldog Electric Products	Standard Air Conditioning	¾
Dr. Austin Neeb (Dentist)	Airtemp	1
St. Joseph's Mercy Hospital	Frigidaire	¾
Harold M. Roltey (Residence)	Frigidaire	¾

Well-Water Systems

Woodward Grand Theater	Oil Heat Service	10-hp. fan, 7½-hp. pump
Sanders Tri-Cleaning	Venderbusch	10-hp. fan, 10-hp. pump
Capitol Theater	Simplex Engi.	10-hp. fan, 7½-hp. pump

Additions to Direct-Expansion Systems

Stroh Brewery Co.	Offices
Detroit Edison Co.	First, second, and part of third floor, main office building

PRESENTING A NEW LINE OF GENERAL CONTROLS

Relays

FOR THE AIR CONDITIONING INDUSTRY

These new relays are built specifically to meet the needs of automatic heat and air conditioning installations. Designed, manufactured and tested by the General Controls Co.

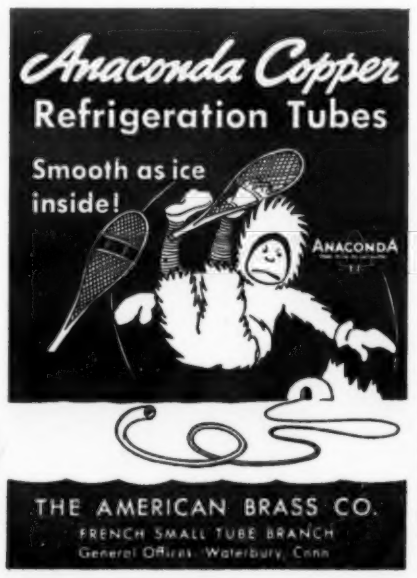
RS-100 RELAY . . . Handles single-phase motor loads up to 1 H.P. or heating loads up to 1.5 K.W. Uses a double-break relay and integral transformer for supplying power to small indicating lamps, wall clocks, or small sensitive relays. Normally open. Two wire.

RELAY PACKAGE SET . . . For the control of coal stokers, air conditioning equipment, blower furnaces, hot water heating and industrial applications.

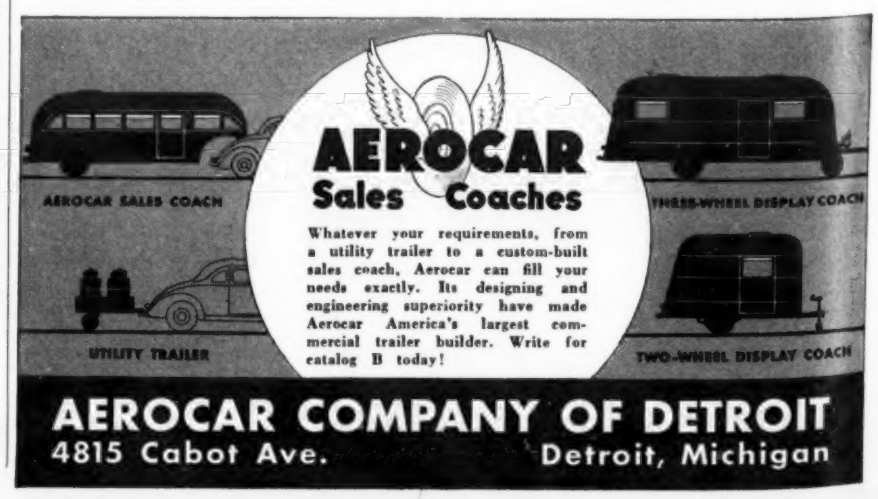
SEND FOR NEW BULLETIN

GENERAL CONTROLS

1505 Broadway, Cleveland, Ohio — 1370 Harrison St., San Francisco, Calif.
267 5th Ave., New York City, N.Y. — 450 East Ohio St. . . Chicago, Ill.



THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.


AEROCAR
Sales Coaches
Whatever your requirements, from a utility trailer to a custom-built sales coach, Aerocar can fill your needs exactly. Its designing and engineering superiority have made Aerocar America's largest commercial trailer builder. Write for catalog B today!
AEROCAR SALES COACH
THREE-WHEEL DISPLAY COACH
UTILITY TRAILER
TWO-WHEEL DISPLAY COACH

AEROCAR COMPANY OF DETROIT
4815 Cabot Ave. Detroit, Michigan

Commercial Refrigeration

Detroit Retailers Are Surveyed Before They Obtain 'Birds Eye' Franchises

(Concluded from Page 1, Column 4)

Quaker Dairies has a long list of prospective retail merchants who have asked for the franchise, Mr. Rigby declared.

In explaining how dealers are established, Mr. Rigby said that Quaker Dairies has studied the method used successfully by Birds Eye retail distributors in Chicago, Philadelphia, and other large cities, and has adopted their system.

No soliciting is done, as the large number of requests from retail grocers, butchers, and other food merchants has made this unnecessary, Mr. Rigby pointed out.

Tentative dealers are selected from the waiting list, and a thorough survey of each is conducted by Quaker Dairies to determine volume of business, efficiency of operation, type of customers, "peak" selling periods of the day.

When a dealer is selected, the proposition is explained to him, and if he accepts he is provided with a demonstration cabinet and a window sign.

INSTALL DEMONSTRATOR

The demonstrator is installed for two or three days, and a special training course is given to the dealer and his sales clerks to educate them in the proper handling, ordering, promoting, and advertising of the Birds Eye products.

Then Quaker Dairies sends the dealer a cabinet for his regular use. However, no dealer can buy a cabinet. He leases one on a three-year contract with a monthly rental basis. All cabinets are owned by General Foods Corp., parent company of the Birdseye organization, and are made on contract by American Radiator Co. in Buffalo, Mr. Rigby said.

Cabinets are shipped to Quaker Dairies, which in turn contracts with a local cartage firm to store them in its warehouse and deliver them when ordered.

The dealer has a choice of two delivery schedules—Mondays, Wednesdays, and Fridays, or Tuesdays, Thursdays, and Saturdays. He is limited to 50 lbs. or 50 packages at any one time.

Other requirements set by Quaker Dairies are that the dealer must keep all Birds Eye frosted foods in the Birdseye cabinet, that he must keep only these products in it, that he check the thermometer inside the cabinet every morning and evening, that he must not handle competitive products, that he must handle the complete line of Birds Eye frosted foods.

Because frosted foods must be kept at sub-zero temperatures at all times until ready to be consumed, Mr. Rigby explained, the dealer is asked to report immediately to Quaker Dairies headquarters if at any time he notices that the temperature in his cabinet is above zero.

A service man is promptly sent out to remedy the trouble. Installation of cabinets is made by a Quaker Dairies service man.

The Birds Eye frosted foods include all vegetables except those with a high water content, such as celery, tomatoes, radishes; fillets and shell fish; and complete lines of fruits, meats, and poultry, said Mr. Rigby.

The foods are delivered by Quaker Dairies to the dealers in fast, 1½-ton trucks refrigerated with dry ice. At present, the fleet consists of four trucks, the two newest of which are insulated with Celotex, Mr. Rigby said.

All Birds Eye frosted foods which are to be cooked, such as meats, vegetables, and fish, should be cooked in their frozen state and should not be thawed out first, Mr. Rigby explained.

Foods which are eaten raw, of course, should be thawed out before they are consumed.

PROCESSING METHOD

All Birds Eye foods are processed at the point of production by the quick freezing method patented by Clarence Birdseye, Mr. Rigby continued. In producing vegetables, the Birdseye company uses its own supplies, contracting acreage, having its own seed planted, and supervising the cultivation.

Shipments are sent to Quaker Dairies' plant here from all parts of the country, certain sections being selected by the Birdseye company as the best areas for producing different kinds of foods.

Immediately upon arrival, the shipments are placed in Quaker Dairies' storage room, sorted, and put into designated compartments. All foods are in packaged form when they arrive.

An ammonia-type refrigerating system with overhead coils keeps the temperature in the storage room at about —6° F. Eight-inch cork brick insulation is used.

Gloekler Mfg. Introduces Four New Commercial Refrigerator Models

ERIE, Pa.—Gloekler Mfg. Co. has announced four new models in its line of refrigerators for restaurants, hotels, hospitals, large homes, and similar establishments.

Cabinets are all steel with standard white finishes of porcelain, high baked Dulux, or porcelain inside and Dulux outside. Color finishes are available.

Three inches of insulation are provided in sides, top, bottom, and doors. Cast brass chromium plated fasteners, with padlock attachment, and a commercial type fastener, automatic in operation, are features of the new refrigerators.

Steel shelves are mounted in adjustable supports to provide flexibility of arrangement, and meat hooks can be installed.

All four models can be arranged for extra shelf area by the addition of shelves in lower and upper compartments.

Models 30 and 350 are four-door refrigerators with capacity of 30 cu. ft. The former is self-contained; the latter is without compressor compartment.

Models 45 and 650 are six-door units with capacity of 45 cu. ft., the former being self-contained, the latter without compressor compartment.

Triple glass-paneled doors are available for top compartments on all models.

Any one of three ice cube makers may be installed in the top right hand compartment of the four new models, standard back wall coil being recommended if an ice cube maker is used. The three cube maker models and their capacities are:

Model A—126 small cubes, or 7.64 lbs.; model B—126 large cubes, or 14.4 lbs.; model C—256 large cubes, or 20 lbs.

Specifications of the four new Gloekler refrigerators are.

Model No.	30	350	45	650
Overall width (inches)	48	48	70	70
Overall depth (inches)	28	28	28	28
Height (inches)	78.5	68	78.5	68
Shelf area (sq. ft.)	27.5	27.5	41	41

Dough Retarders Introduced By Puffer-Hubbard

MINNEAPOLIS—Two bakery refrigerators specifically designed for retarding dough have been announced by Puffer-Hubbard Mfg. Co.

Called the "Slo-Dough" models, the new units have Dulux finish on front and sides and door pans, with galvanized top, bottom, and back, and galvanized interior lining. Automatic light is in bulk storage section of each.

Forced airflow system is used in each for cooling purposes. Recommended are a ¾-hp. compressor for the larger of the two models, and a ½-hp. compressor for the smaller. Three inches of insulation are used in both units.

List prices f.o.b. Minneapolis are $705 for model D77, the larger, and $566 for model D48, the smaller.

Specifications are:

Model No.	D48	D77
Shelf area (sq. ft.).....	21	22
Net capacity (cu. ft.).....	48½	77½
Width (inches)	49½	72
Height (inches)	84	84
Depth (inches)	34	34
No. adjustable shelves....	5	5
No. of doors	3	4

Dairy Installation Cuts Bacteria Counts

BERWYN, Pa.—Bacteria counts as low as 200 are reported by the Chesterbrook Dairies here since the installation of a modern refrigeration system for milk cooling and dairy product storage.

Since the installation of Carrier refrigeration equipment, samples of the milk are taken several times each month for analysis by the Dairy Laboratories, Philadelphia, says Peter J. Boland, manager of the dairies.

With few exceptions, he states, "our bacteria counts each month have averaged below 1,000 per million (plate count), and at times as low as 200."

Brunswick's New National Distribution Doubles Sales This Spring

CHICAGO—Formation of a national organization for the distribution of Brunswick "Blue Flash" electric table-top refrigerators has been completed within four months, H. D. Laidley, general sales manager of the appliance division of Brunswick-Balke-Collender Co., has announced.

Before beginning to organize the distributing system in January of this year, the Blue Flash manufacturer had sold its commercial refrigerators through 40 factory branch offices and 700 retail salesmen, covering only about 15% of the market, Mr. Laidley said.

At the present time, he continued, complete coverage of the national market is made by the new wholesale organization, which has absorbed all of the Brunswick key retail managers and salesmen.

So efficient is the new system, declared Mr. Laidley, that sales for the first four months of this year were more than double those for the same period in 1937.

Utah Concern Installs Quick Freezing

MURRAY, Utah—Rocky Mountain Packing Co. has installed quick-freezing equipment in its plant here, and is preparing to process approximately 400 acres of peas this season.

Grand Rapids Cabinet Co. Opens Factory Sales Branch In Detroit

DETROIT—A new factory sales branch has been established here by Grand Rapids Cabinet Co., Grand Rapids, Mich., manufacturer of ice cream cabinets, soda fountains, display cabinets, and related equipment.

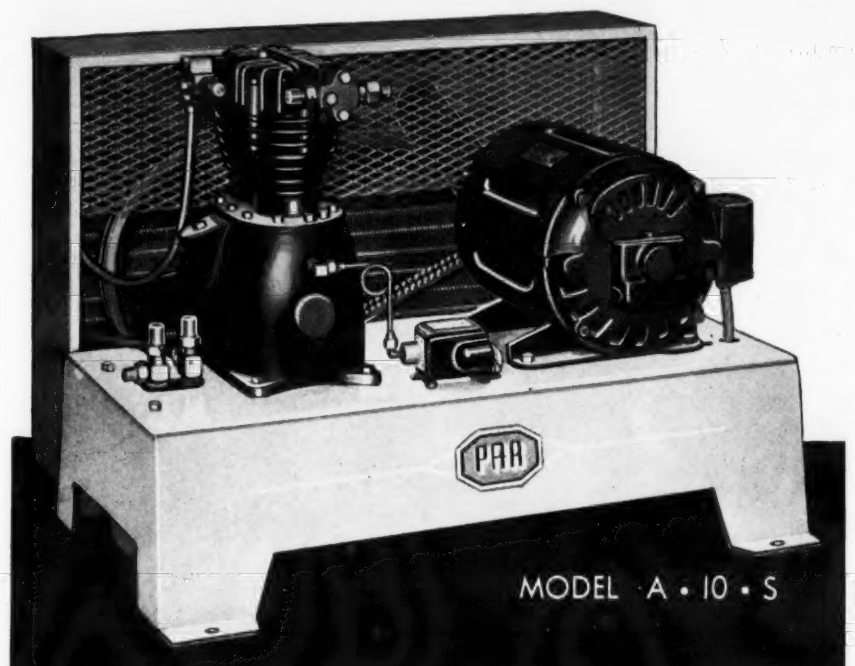
Albert Buck has been appointed manager of the new office. Territory covered includes Greater Detroit and seven surrounding counties.

Complete self-contained cabinets, equipped with Universal Cooler refrigerating machines, are sold by the branch. Also handled are specialized installations comprising complete equipment, including furniture, for modern retail ice cream stores.

New Distributors Named By Servel, Inc.

EVANSVILLE, Ind.—Appointment of several new distributors of Servel commercial refrigeration equipment has been made recently by representatives of Servel, Inc.'s commercial refrigeration and air-conditioning division here.

New distributors include: Waters Refrigerating & Heating Co., Wichita Falls, Tex.; Electric Refrigeration Co., Louisville, Ky.; George A. Dillon & Son Co., Erie, Pa.; Equipment & Furniture Co., Williamsport, Pa.; and the J. W. Dempsey Co., New Bedford, Mass.



PAR AIR COOLED UNITS

FOR COMMERCIAL REFRIGERATION

— are made in six popular sizes, ¼ to 2 horsepower, for either Freon-12 or Methyl Chloride refrigerants. Three optional speeds for low temperature, standard temperature, or high temperature applications.

OUTSTANDING FEATURES

- Large capacity, slow speed compressors
- Crankshaft driven compressors
- Three-ring pistons — two compression, one oil ring
- Compressor valves in removable valve plate
- Bulls-eye sight oil gauge in crankcase
- Thermal overload protection
- Oversize continuous fin, continuous tube condensers
- Large capacity dual valve receivers
- Fusible plug equipped receivers
- Built-in convenient motor adjustment
- V-cog overbelted drive
- Completely assembled and wired ready for installation

There are six compressor bodies and twenty-eight complete high-sides in the Par line, in a range of sizes from ¼ to 20 horsepower.

Write TODAY FOR THIS FREE CATALOG!

MODERN EQUIPMENT CORP., DEFIANCE, OHIO

SEE THE PAR UNITS NOW ON DISPLAY AT YOUR NEAREST JOBBER

Atlanta, Georgia Bowen Refrigeration Supplies, Inc.
Baltimore, Maryland Melchior, Armstrong, Dessau Co.
Birmingham, Alabama Refrigeration Supplies Distributor
Boston, Massachusetts Melchior, Armstrong, Dessau Co.
Brooklyn, New York Melchior, Armstrong, Dessau Co.
Buffalo, New York Root, Neal & Co.
Charleston, W. Virginia Air Conditioning & Refrigeration Sup., Inc.
Chicago, Illinois H. W. Blythe Co.
Cincinnati, Ohio Merkel Brothers
Cleveland, Ohio Debes & Co.
Columbus, Ohio Hughes-Peters Co.
Dallas, Texas The Electromotive Corp.
Davenport, Iowa Republic Electric Co.
Dayton, Ohio Allied Refrigeration Parts Co.
Denver, Colorado Refrigeration Service Co.
Detroit, Michigan W. C. DuComb Co., Inc.
Des Moines, Iowa Dennis Refrigeration Supply Co.
Flint, Michigan Shand Radio Specialties
Ft. Worth, Texas McKinley Refrigeration Supply
Greensboro, N. Carolina Home Appliance Serv. Co.
Harrisburg, Pennsylvania Melchior, Armstrong, Dessau Co.
Houston, Texas D. C. Lingo Co.
Indianapolis, Indiana F. H. Langsenkamp, Inc.
Jacksonville, Florida The Jamita Co.
Kansas City, Missouri Forslund Pump & Machinery Co.
Long Beach, California Refrigeration Supply Distributors
Los Angeles, California Refrigeration Parts Exc. Refrigeration Supply Dis.
Louisville, Kentucky S. W. H. Supply Co.
Madison, Wisconsin Gustave A. Larson Co.
Memphis, Tennessee United Refrigeration Supply Co.
Milwaukee, Wisconsin Refrig'ation Specialty Co.
Minneapolis, Minnesota Refrigeration & Industrial Supply Co.
Montgomery, Alabama Teague Hardware Co.
Newark, New Jersey Melchior, Armstrong, Dessau Co.
New Haven, Connecticut Resco, Inc.
New Orleans, Louisiana The Spangler Co.
Newport News, Virginia Noland Company
New York City, N. Y. Melchior, Armstrong, Dessau Co.
Oklahoma City, Oklahoma Mideke Supply Co.
Omaha, Nebraska Interstate Machinery & Supply Co.
Oshkosh, Wisconsin Gustave A. Larson Co.
Peoria, Illinois R. E. Thompson Co.
Philadelphia, Pa. Melchior, Armstrong, Dessau Co.
Pittsburgh, Pa. William Orr Company
Phoenix, Arizona Refrigeration Supply Dis.
Portland, Oregon Refrigerative Supply Co.
Richmond, Virginia A. R. Tiller, Inc.
Rochester, New York Melchior, Armstrong, Dessau Co.
Rockford, Illinois Gustave A. Larson Co.
Sacramento, California Hinshaw Supply Co.
San Francisco, California California Refrigerator Co.
Seattle, Washington Refrigerative Supply Co.
Shreveport, Louisiana Interstate Electric Co.
Sioux City, Iowa Refrigeration Supply Co.
South Bend, Indiana F. H. Langsenkamp, Inc.
Spokane, Washington Ditlevson & Evans
Springfield, Illinois Springfield Refrigeration Supply Co.
Springfield, Mass. C. P. Payson Company
St. Louis, Missouri The Spangler Co.
Tampa, Florida Bowen Refrigeration Supplies Co.
Toledo, Ohio Heat and Power Engineering Co.
Tulsa, Oklahoma Machine Tool & Supply Co.
Washington, D. C. Melchior, Armstrong, Dessau Co.
Waterloo, Iowa Winterbottom Supply Co.
Wichita Falls, Texas United Electric Serv. Co.
Toronto, Canada (Ont.) Railway & Engineering Specialties, Ltd.
Montreal, Quebec, Canada Railway & Engineering Specialties, Ltd.
Winnipeg, Man., Canada Railway & Engineering Specialties, Ltd.

MODERN EQUIPMENT CORPORATION
DEFIANCE • OHIO • U • S • A

Mohr Presents Estimates On Number Of Locker Plants In Use & Average Cost; Sees '300-Locker' Plant as Ideal Size

This is the first part of an interview with Earl L. Mohr, vice president and sales manager of Master Refrigerated Locker Systems, Inc., Sioux City, Iowa, written by Wilson L. Taylor, former regular staff member of AIR CONDITIONING & REFRIGERATION NEWS, and now a field correspondent for the NEWS in Sioux City.

Mr. Mohr has had some contact with possibly 50% of all the refrigerated locker plant installations made thus far, and is thus well qualified to speak on the extent, problems, and trends of the locker storage business.

In the second part of this interview, to be published in a future issue, Mr. Mohr will discuss new trends in locker plant engineering and construction and the theories underlying them, and will reveal a model layout of advanced design, complete with cost estimates. Also, Mr. Mohr will consider the application of air-conditioning principles to locker plant storage methods.

SIOUX CITY, Iowa—In this city, the "heart" of the refrigerated locker storage movement, are two men who probably know as much about the past history, current problems, and future probabilities of the locker field as any other pair of individuals in the country.

They are W. W. Wilson, president, and Earl L. Mohr, vice president and sales manager, of Master Refrigerated Locker Systems, Inc. Of the 600 plants in this area, more than 300 have been equipped with lockers by this company.

These two men have some rather definite ideas about the locker storage business—about the number of plants that are in operation, the size of plant that lends itself to the most profitable operation, and the future of locker plant design.

Mr. Mohr, brother of T. L. Mohr, veteran Frigidaire engineer, has been constantly in contact with the majority of installations in this area. He himself has designed or helped in the designing of many of these.

IS AN AUTHORITY

So extensive has Mr. Mohr's experience become—in the short period of three years, by the way—that he has become an authority on the construction and design of locker plants. The United States department of agriculture, the agricultural departments of universities, engineering companies, refrigeration firms, and magazines throughout the country continuously seek advice and information from him.

Because the correspondent depended for most of his information on Mr. Mohr, because Mr. Mohr's experience in the industry has been bound up with the corporation, and because that firm has been a leader in the development of locker plants in the midwest, a short summary of Mr. Mohr's experiences will substantiate the material of this article.

Mr. Mohr was born in a small Iowa town. He knew the meat keeping problems of farmers and when, after a business career in Chicago, he came early in 1935 to Iowa on a business trip and heard about the first experimental locker plants, he became interested at once.

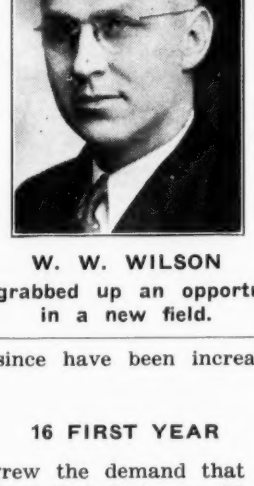
After surveying some of the plants in the territory, he decided to get in the business at once. Most of these systems had lockers constructed of wood frames and steel doors. A few lockers were of galvanized steel. Locker walls were of steel mesh. Quick freezers were unknown.

EARLY INSTALLATIONS

That spring (still 1935) Mr. Mohr promoted his first plant—in a gasoline filling station at Kinglsey, Iowa. He had Kari-Keen Co. of Sioux City, now defunct but then well known throughout the nation for manufacturing auto trunks, build 260 lockers of baked enamel all-steel construction.

Before the plant was completed, Bryce Volmer of Holstein, Iowa, then a Standard Oil field representative and now a leading salesman for the corporation here, asked Mr. Mohr to superintend the building of a Holstein plant. The 205 lockers installed there since have been increased to 426.

Heads Firm



W. W. WILSON
He grabbed up an opportunity in a new field.

16 FIRST YEAR

So grew the demand that before the end of that first year Mr. Mohr directed the installation of 16 systems and became the sales manager for the locker division of Kari-Keen Co.

Continuing with that company, Mr. Mohr was instrumental in the manufacture and installation during 1936 of 15,000 lockers for 50 plants. Systems were installed in South Dakota, Minnesota, Illinois, and Wisconsin as well as in Iowa. Kari-Keen, because car manufacturers in general began to furnish built-in trunks as regular equipment, closed its doors at the end of 1936.

FIRM FORMED IN 1937

Locker orders, however, were unfilled, with more of them coming in all the time. Seizing the opportunity to enter the growing field, Mr. Wilson, who had been Kari-Keen production manager, and Mr. Mohr decided to take a chance.

They formed Master Refrigerated Locker Systems, Inc., on Jan. 1, 1937, bought shop rights, dies, tools, and machinery for steel working from Kari-Keen creditors, and went into production by the 17th of that month.

Putting on a campaign emphasizing the use of locker plants as a community service, the corporation built nearly 23,000 lockers for 90 plants before the end of 1937. Mr. Mohr claims that the company now has furnished lockers for more than 300 installations.

PLANT ENLARGED

The plant has been enlarged, it ships lockers as far as both coasts, and its future fortunes have become one of the major interests of the Sioux City Chamber of Commerce.

The balance of the lockers installed in this territory may be credited to several companies, among them the following: Midwest Stamping Co., Kellogg, Iowa; Lincoln Louvered Locker Co., Pocahontas, Iowa; Nebraska Appliance Co., Lincoln, Neb.; All-Steel Equipment Co. and Durabilt Locker Co., both of Aurora, Ill.; and Knickerbocker Stamping Co., Parkersburg, W. Va.

Nothing but lockers are sold by the corporation here, yet Mr. Mohr, because of his experience, perpetually has been called on for advice in the design and construction of plants.

CONDUCTS CLINICS

Clinics for the education of engineers and salesmen in the specifications and sizes of plants, proper insulation, refrigeration, and like problems, have been conducted by Mr. Mohr in Omaha, Minneapolis, and metropolitan centers. Mr. Wilson plans to hold clinics during this month (June) in Oakland and Los Angeles, Calif., with Frigidaire dis- Madison, Wis., Kansas City, Mo., tributors there.

York representatives from Salt Lake City, Denver, Memphis, and Oklahoma City recently visited the factory here, and many present locker plant owners have come to this seat of activities to learn just how and why to construct and equip their plants properly.

Determining the number of modern locker plants in operation has been one of Mr. Mohr's greatest interests. He has sought exact and substantiated figures from all his contacts, by letter, by word of mouth from refrigeration men who travel through this locker center and from those he has contacted at clinics and on business trips, and from reports released by refrigeration manufacturers.

Getting little definite information from any United States department of agriculture, university research departments or anywhere else, Mr. Mohr a few months ago wrote to every secretary of state in the 48 states. Answers from the latter were not very revealing.

225 IN IOWA

Correspondence with the Iowa state department was most nearly satisfactory, probably because Iowa locker plants must pay a $25 per year license fee. Only 197 were reported, but Mr. Mohr has personal knowledge of the locations of more than 225. The pins indicating them at the time of the correspondent's interviews were sticking in an Iowa map on the wall of Mr. Mohr's office.

Adding to the number of plants of which he had definite knowledge an allowance for other plants which may have been built during the first of the year, Mr. Mohr more than doubled the number, saying that the most generous estimate which he possibly could allow was "less than 1,000 plants" which could be classified either as old or modern ones.

He added that he more than anyone else would like to see evidence that as many as 700 modern plants are in operation.

AMMONIA JOBS

During the first mushroom growth of the industry, Mr. Mohr stated, in describing developments in plant design, ammonia refrigeration was used more than any other type, but during the past year scores of installations have been served by equipment using Freon or methyl chloride.

Going into detail on specifications of about 150 plants established within the last six months, Mr. Mohr said that 60% of them were refrigerating with Freon equipment using direct-expansion plate coils.

Approximately 35% of these recent installations were equipped with pipe coils, about half of the systems being direct expansion and the other half, flooded.

The remaining 5% used forced air direct-expansion Freon or methyl chloride systems. Most of these are using finned coils; a few, pipe coils.

Leading types of insulation used during the last six months in order of their demand, Mr. Mohr said, were corkboard, ground cork, and Palco bark. Other types included exploded mica, Celotex, and mineral rock, and glass wools. Even mill shavings have been used, he said, but less so than previously.

"MILL SHAVINGS BAD"

"Mill shavings are bad business. They harm the industry because they will not, in the long run, stand up. Moisture eventually will saturate them."

The ideal plant size, Mr. Mohr declared, is about 300 lockers. At least that holds true for this territory, he said.

"Plants in this territory run from 75 to 1,200 lockers in size. We warn prospective plant owners against installing too large systems.

"We have found that the average size has, in general, operated with the best profits. Space can be allowed to add more lockers if demand is sufficient. One plant too large for a community to handle may break the operator and discredit the industry."

Mr. Mohr said he could see no justification for the opinions of certain writers who have claimed that systems containing less than 1,000 lockers were inadvisable. The contrary was indicated by his experience.

Gathers Figures

EARL L. MOHR
He knows nearly half of all locker storage installations by personal contact. (Note pins in map on wall back of the desk, showing plant locations in Iowa.)

"Besides, the trend is definitely away from large plants. A new policy, based on maximum service, is growing in the industry.

"Suppose 1,300 lockers are to be installed in a city large enough to insure having that many rented. The ideal is not to house all 1,300 lockers in one plant. There should be a main plant containing 300 lockers and with full facilities for chilling, processing, and freezing.

BRANCH PLANTS

"Branch plants, five of them containing about 200 lockers each then should be constructed in various parts of the city handy for locker renters. These plants would contain only lockers. Meat ready for storing in them would be transported from the main plant to the branch."

The ideal system size still is from 250 to 300 lockers, Mr. Mohr believes. He prophesied that the day will come when plants of that size will be installed in the rear of thousands of food merchandising stores.

In this respect he pointed out that locker rental fees must not be considered the only income for such places of business. The value of having customers coming day after day to the store will mean many dollars in increased sales for such food stores.

Installation costs, Mr. Mohr declared, have been misrepresented by many writers. Estimates run as high as $50 per locker when a building to house the plant must be constructed.

COST PER LOCKER

"The average cost per plant in this territory has ranged from $25 to $27, building included, usual installation cost for plant and building on a 300-locker job amounting to about $8,000.

"When the plant has been installed in another building, the average cost per locker has been from $18 to $20, the average size plant cost totaling $6,500."

More interesting perhaps than the information on the number and description of the plants in operation were Mr. Mohr's analyses of the development of the meat keeping techniques in locker plants, the changes which are being instituted in engineering and construction, and his plans for a "model" locker plant.

Air tight lockers, he predicts, will be the next development. Mr. Mohr divided locker engineering in three distinct phases which he called "Was," "Is," and "To be."

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CORRECT COILS FOR LOCKER PLANTS

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Plant At Lapeer, Mich. Has Two Sizes Of Lockers, a Two-Section Chill Room, And an Ice Cream Store Annex

By Alfred Jones

LAPEER, Mich. — With about 40,000 lbs. of meat processed since the opening of the plant Feb. 5 of this year, the Lapeer Food Lockers is proving to be a successful venture for E. D. and D. E. Younker.

Built for a capacity of 520 lockers, the plant at present has 285 installed and 200 rented, according to Leon Dent, manager. The rented lockers are about evenly divided between farmers and townsfolk, Mr. Dent added, explaining that it is customary for a farmer to sell half his meat to a customer, storing the rest in a locker, and the customer in turn rents a locker to store the meat he has purchased.

The Lapeer locker storage plant is equipped with Frigidaire commercial refrigerating equipment, sold by H. Clay Whipple, local Frigidaire dealer, in cooperation with the Frigidaire factory branch at Detroit.

Actual installation of the refrigerating system was made by engineers of the Detroit branch.

FOLLOW OTHER PLANTS

Building was constructed according to plans and specifications of other locker storage plants in the Middle West, said Mr. Dent. There is a cutting room in front, chill room along one side, locker room on the other side, and sharp freeze room between the locker and cutting rooms. An added feature is a retail ice cream annex, also in the front part of the building.

"We have two sizes of lockers," said Mr. Dent in describing the layout and operation of the plant. "The 350-lb. lockers rent for $12.50 a year, and the 300-lb. lockers for $10.

"A farmer comes in and tells us he has a beef to kill. Our own butcher goes with him to the farm, takes the beef to our own slaughterhouse, and kills it in the proper method. After dressing it, he brings the carcass to the locker plant, and it is hung in the chill room. The farmer's name, locker number, and date brought in are written on a tag which is attached to the carcass.

"Biggest advantage offered by the locker plant to the farmer is that he can have his butchering done in the summer as well as in winter.

"The carcass hangs in the chill room until the farmer asks to have it cut up and frozen, by which time it has lost all of its body heat and is ready for processing."

CHILL ROOM DIVIDED

The chill room is somewhat unusual in that it is divided into two parts, the sections being separated by a heavy, insulated door. When first brought to the plant, the carcasses are hung in the smaller section to cool off. They are suspended by hooks from an overhead track, and when cool enough are rolled through the doorway into the larger section of the chill room.

From the chill room, the carcasses are taken into the cutting room, Mr. Dent continued, where he and his assistant cut them up into the specified kinds of meat, such as roasts, steaks, and chops, at a charge of 1 cent a pound.

All types of meat are handled, including beef, veal, pork, and lamb.

Each piece of meat is wrapped in a special kind of paper, contact side of which is surfaced so that it will not adhere to the meat when frozen. Beef is wrapped in brown paper, pork in white, for quicker identification, Mr. Dent said.

WRAPPING MEAT

When wrapped, each piece is tagged with the locker number, name of owner, date processed, and other pertinent information.

Steaks and leftovers from the trimming are ground into hamburg, if asked for, at a charge of 1 cent a pound. Sausages are made from pork leftovers at a charge of 2 cents a pound, including seasoning.

Experimenting is being done with lard, Mr. Dent added. Fat is ground up in a special manner, and the customers take it home and make their own lard. Then they bring it back to the plant to be frozen and stored in their lockers.

The individual packages of meat are placed in the sharp freeze room, continued Mr. Dent, temperature being eight below zero. Freezing process takes about 10 or 12 hours.

From the freezing room, the packages of meat, now hard as rocks but not brittle, are taken into the locker room and placed in the proper lockers. Temperature in this room is maintained at approximately 10° F.

"We recommend that beef be kept in the lockers not longer than one year, pork not longer than six months, and lamb, veal, and poultry not longer than 18 months," Mr. Dent stated. "We like to have pork moved within 10 days and beef within a little longer period."

Numerous kinds of fruits, vegetables, and dairy products are kept in the lockers too, Mr. Dent said. Containers are furnished for strawberries, which can be stored for long periods of time.

Other articles displayed include a purple tulip, frozen in perfect condition, and two frozen butterflies.

$15,000 INVESTMENT

Elwyn Younker, who is co-owner of the locker plant with his brother, D. E. Younker, estimated the investment in the project to be between $12,000 and $15,000, all personally financed by themselves.

In telling how the idea for the locker plant was formed, Mr. Younker said that his brother saw a storage plant in Sibley, Iowa, while he was on a vacation last year. Becoming interested, he visited two or three more plants.

"He came back and described them to me," Mr. Younker went on, "and we wrote to various companies for more complete information. Later, we looked over some additional locker plants in Illinois."

Definitely deciding to build a locker storage in Lapeer, the Younker brothers then sought bids for the refrigerating equipment and installation, finally signing a contract with Mr. Whipple, the Frigidaire dealer.

SOON WELL KNOWN

When the plant finally was opened on Feb. 5, Mr. Younker said, the local newspaper published an article about it, as did other papers in the surrounding territory. Thus launched, the plant soon became well known.

Three Frigidaire compressors are used to provide cooling for the Lapeer Food Lockers, one serving for each refrigerated room. There is a 3-hp. unit for the locker room, another 3-hp. unit for the sharp freeze room, and a ¾-hp. unit for the chill room.

After an engineering study of the three cooled rooms, each having a different temperature requirement, it was found that a saving in both first cost and operating cost could be effected by using a three compressor system, one for each room.

All compressors use Freon refrigerant, are water cooled, and are mounted on a common foundation in the basement of the building.

SPECIFICATIONS

In figuring the required refrigeration for the locker system, engineers of the Frigidaire Detroit factory branch designed an installation which would maintain a temperature of from 33 to 35° F. in the chill room, a temperature of from 8 to 10° F. in the locker room, and a temperature of from —8 to —10° F. in the sharp freeze room, stated J. C. Campbell, of the commercial refrigeration department of the branch.

The most important requirement, said Mr. Campbell, was that the locker room be kept at approximately 10° F. all year long.

All rooms are 9 feet high, other dimensions being as follows: chill room (large section)—28 feet long, 9 feet wide; chill room (small section)—6 feet long, 9 feet wide; sharp freeze room—9 feet 6 inches long, 8 feet wide; locker room—35 feet long, 22 feet wide.

Basing their calculations on a heat load, in addition to leakage, of 1,000 lbs. of meat a day being cooled from body heat, about 90° F., down to room temperature, about 35° F., the Frigidaire engineers installed two forced-air ceiling mounted evaporative coils in the chill room, one in each section.

The daily total of 1,000 lbs. of meat was obtained by estimating 2 lbs. per locker per day to be processed, then multiplying by 500, the approximate number of lockers eventually expected to be in use.

A total of 850 lineal feet of 1¼-inch standard steel pipe coil was installed in the sharp freeze room. The system is equipped with thermostatic expansion valves, and is controlled by a low-pressure switch, Mr. Campbell explained.

Food packages to be frozen are placed on wide-mesh wire shelves arranged in tiers on each side of the narrow, central aisleway in the sharp freeze room.

In the locker room there are four pipe coils suspended from the ceiling in the aisles between the lockers. Each coil consists of 280 feet of 1¼-inch pipe, and is equipped with a thermostatic expansion valve. Thermostatic switch control also is installed.

Hand shut-off valves also are provided on each coil so that any one can be isolated without interrupting the refrigeration cycle, Mr. Campbell pointed out.

The two compressors serving the locker and sharp freeze rooms are interconnected in such a way that in the event of one of them becoming inoperative, the other can be used in its place.

An oil separator is installed on each of the 3-hp. units, with a sight glass in the oil return lines.

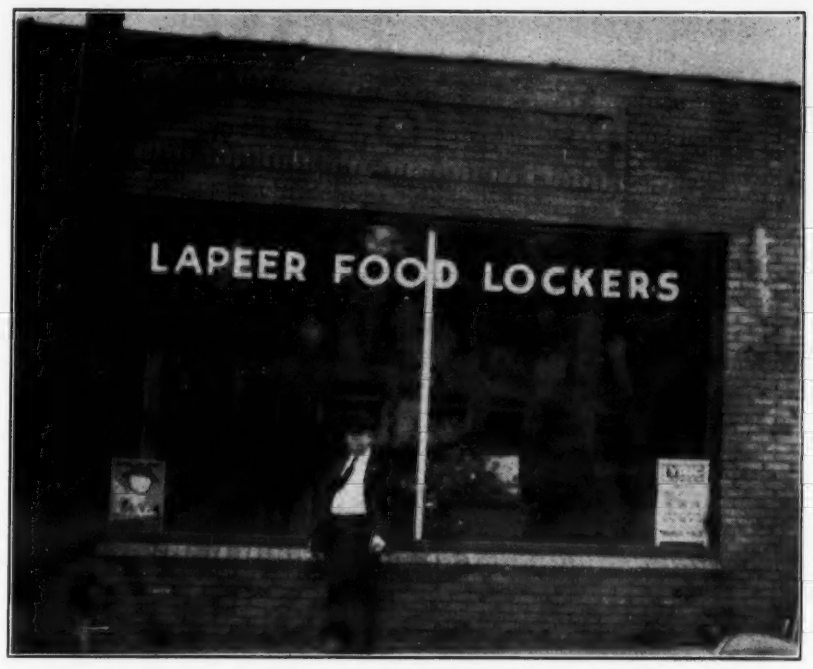
Though no defrosting has been necessary yet, Mr. Campbell said, the refrigerating systems are designed for hot gas defrosting, the hot gas circulating through the coils and melting the ice accumulated on the outside. Only one coil in each of the three systems can be defrosted at a time.

In the defrosting operation, Mr. Campbell explained, the bypass method is used. An additional refrigerant line equipped with hand shut-off valve is teed into the suction line from the discharge line.

Quick defrosting is necessary in both the locker and sharp freeze rooms to guard against food spoilage.

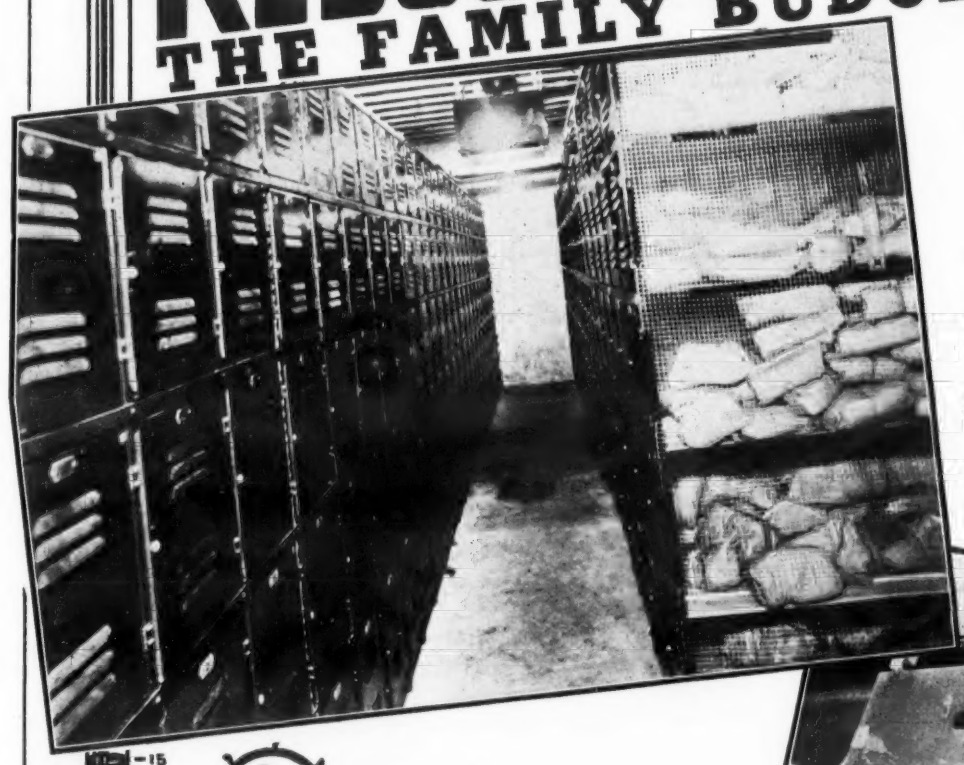
Palco bark insulation, processed from the bark of redwood trees, is used throughout the building.

Front View Of Locker Storage Plant

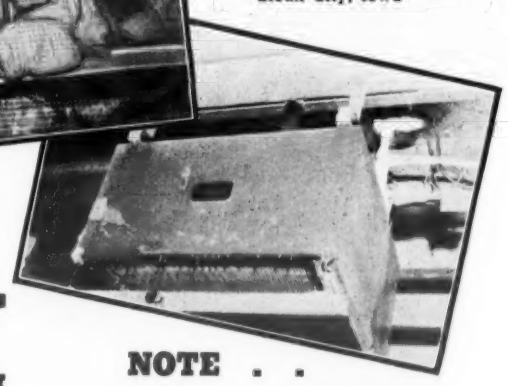


Five years ago one could have toured through every city, village, and hamlet in the country without finding a sign such as is seen on this building in Lapeer, Mich. In front of the building is H. Clay Whipple, Frigidaire dealer who cooperated on the installation.

REDUCING THE FAMILY BUDGET . . .



- *Installation . . .* Part of 246-Locker Installation Anderson Cold Storage Lockers Primghar, Iowa
- *Refrigeration Unit . . .* Carrier — No. K 15
- *Installed by . . .* Malone & Moles Sioux City, Iowa
- *A-P Valves — by . . .* Fred Carlson Primghar, Iowa
- *Valves Purchased through . .* Refrigeration Supply Co. Sioux City, Iowa



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Three temperatures are important in Locker Storage — chilling, freezing, and storage. The efficiency of each depends upon a minimum fluctuation that only unusual Valve sensitivity can provide. A-P Thermostatic Expansion Valves are offering this sensitivity and accurate temperature control in locker storage plants everywhere.

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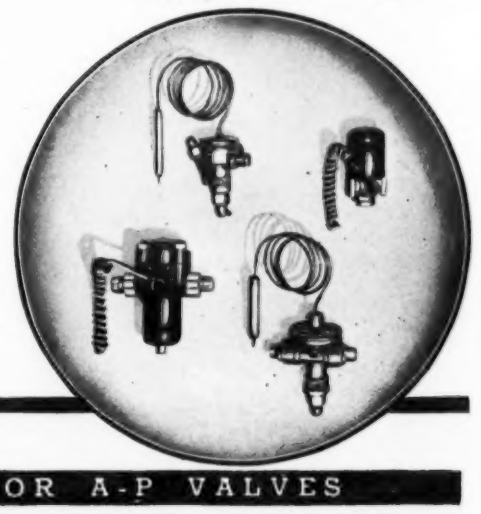
NOTE . .

The A-P No. 210 Expansion Valve in illustration is almost covered by thick layer of frost. This never effects A-P Valve efficiency for the Service Engineer writes: "A-P Valves operate much better than the valves we had on before. For one thing, we can come closer to flooding the coils than with previous valves."

Refrigeration Parts Jobbers, who recognize quality, stock A-P Controls.



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DEPENDABLE
THE BYWORD FOR A-P VALVES

Commercial Refrigeration

Westinghouse Introduces 'Sterilamps' For Commercial Refrigerators

(Concluded from Page 1, Column 3)

been to operate electrically refrigerated boxes at a temperature of 34° to 38° F., it is pointed out. This retards the growth of mold, but while obtaining this low temperature, the moisture in the air condenses in the form of frost on the coils and thus humidity in the box is reduced to 60% or less, causing the meat to dry out and lose both weight and savory juices.

Typical losses due to evaporation are from 2% in beef and 4% in veal for storage periods of 24 hours, to 3% and 5% respectively for storage periods of 48 hours. The loss in weight due to dehydration experienced by the average retail meat dealer is in the neighborhood of 5%. Dehydration also causes a darkening of the cut surfaces, which must be trimmed before the meat is sold. Mold, trimming, and dehydration account for a gross loss which often amounts to 10% or more, it is said.

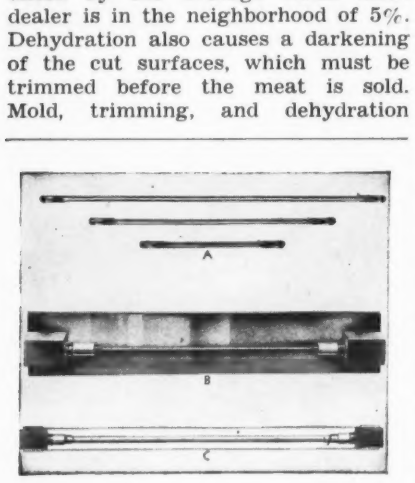
These losses can now be stopped by "Rentschlerizing," it is claimed. Since bacteria and mold are killed by the Sterilamp, low temperature storage becomes unnecessary. It is necessary only to chill the meat enough to prevent flabbiness, and render it firm enough to cut readily and neatly. The refrigerator temperature can be raised to 40° but not exceeding 45° F., thereby reducing refrigeration cost by 25% or more.

By using higher temperature, the relative humidity can also be increased. This increase, in turn, prevents the natural moisture in the meat from evaporating, and weight losses from this cause are reduced 80% or more. In addition, meat surfaces do not darken, and surface trimming losses are substantially reduced.

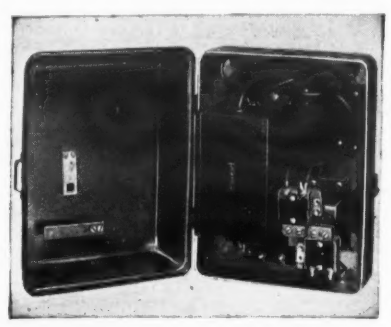
Other important advantages claimed for "Rentschlerizing" are: improved odor of meat and refrigerator; no need to "freshen" meat by rinsing with bicarbonate of soda or wiping off mold and slime; trimmings, if lean, are salable as first quality meat; elimination of loss on articles held longer than normal marketing period, and the practicability of carrying a larger inventory to take advantage of market price fluctuations.

Sterilamps in refrigerated display cases have the same beneficial effects as in the refrigerator. In addition, they provide improved appearance of meat and meat products, resulting in increased sales. They also provide retention of freshness of perishable foods, such as chicken loaf, chopped meat, sausage, cottage cheese, etc.

A power unit is specially designed for operating Sterilamps. It consists of a transformer, relay, starting button, and safety switch—all enclosed in a neat metal housing. Each power unit is capable of operating one to four 30-inch Sterilamps, one one to five 20-inch Sterilamps, or one to six 10-inch Sterilamps from any 60 cycle supply voltage between 110 and 120 volts.



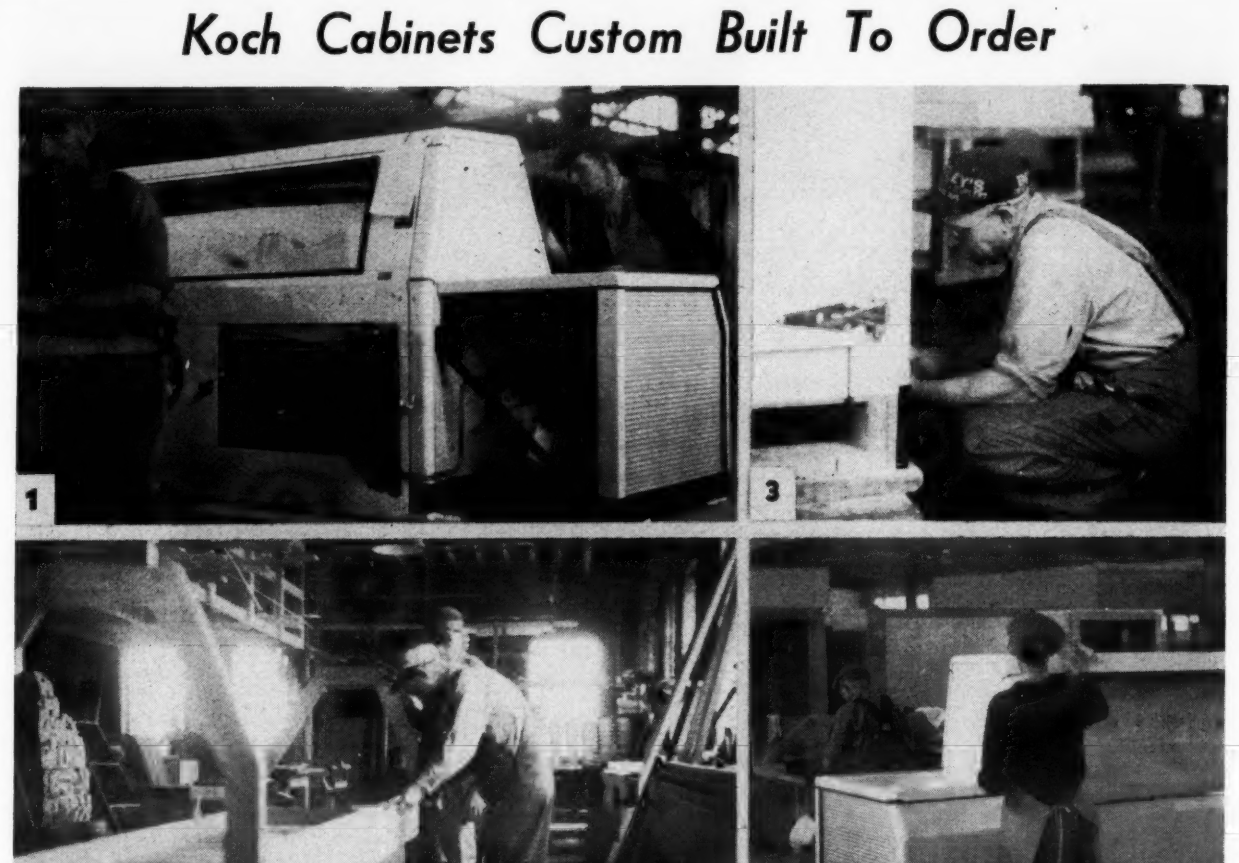
(A) Tubes in 10, 20, and 30-inch lengths. (B) SB-30 fixture for wall or ceiling mounting, complete with aluminum reflector, sockets, and terminal boxes. (C) SC-30 for display cases.



The SL-100 power unit operates one to four Sterilamps in series and combines in one cabinet a safety relay, safety door interlock, starting button, and transformer.

KEROTEST
Valves and Fittings
The Standard of the Industry
Kerotest Manufacturing Co.
Pittsburgh, Pa.

Koch Cabinets Custom Built To Order



Custom-made jobs are a specialty with Koch Butcher's Supply Co. (1) Many distributors order their compressors and coils to be sent to the Koch factory, where they are installed for shipment as complete units—thus saving local installation charges. (2) Building the frame for a twin-visibility center aisle display case. (3 and 4) Finish and trim receive especial attention from Koch's veteran workmen.

Self-Contained Conditioners Show Gain In Nema Commercial Sales For April

(Concluded from Page 1, Column 2)

ing lead over all other types in the sales report for the month, totaling 1,645 units. Self-contained units of the water-cooled type sold best in the 2-hp. and up sizes.

Sales of ice cream cabinets and bottled beverage coolers also showed encouraging totals for April, although neither was quite up to 1937 marks for the corresponding month. Ice cream cabinet sales totaled 6,398 units this April, compared with 6,747 last year; beverage cooler sales were 6,524, compared with 8,614 in April last year.

Commercial condensing unit sales for this April totaled 10,545 units, as against 23,628 a year ago.

April Nema sales in the United States alone totaled 24,701 units this April, against 38,547 last year.

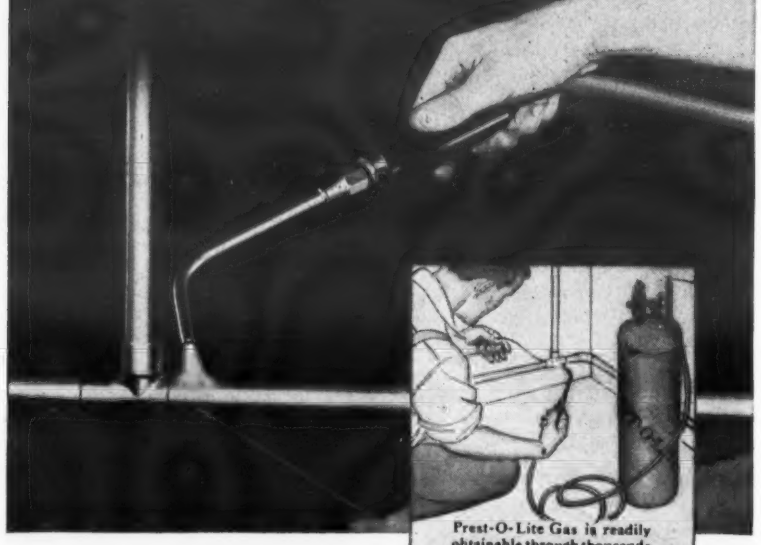
28,013 Commercial Refrigeration and Air-Conditioning Units Sold In April By Nema Manufacturers

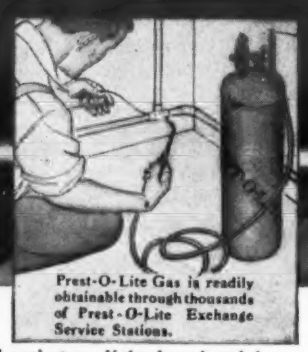
The following report of commercial refrigerating and air-conditioning equipment sales for April, 1938, was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following 14 companies:

Brunner Mfg. Co., Carrier Corp., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR APRIL, 1938	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value	Total World Quantity	Total World Value
1. Bottle Water Coolers—Complete	487	$ 32,309	8	$ 481	72	$ 5,150	567	$ 37,940
2. Pressure Water Coolers—Complete	1,457	146,175	15	1,363	90	9,602	1,562	157,140
3. Water Coolers—Low Side Only	103	11,410	4	230	4	245	111	11,885
4. Ice Cream Cabinets—Complete	5,876	889,939	410	53,296	112	15,821	6,398	959,056
5. Ice Cream Holding Cabinets Only (Remote)	632	80,592	9	1,022	4	707	645	82,321
6. Bottled Beverage Coolers—Complete	5,967	596,796	396	35,323	161	14,743	6,524	646,862
7. Beverage Coolers (No High Sides)	130	9,429	....	....	1	82	131	9,511
8. Milk Coolers—Complete	19	3,035	....	....	....	....	19	3,035
9. Milk Cooling Cabinets (No High Sides)	....	....	....	....	....	....	....	....
10. Self-Contained Air Conditioners Air Cooled—All Sizes	1,529	318,153	....	....	116	24,456	1,645	342,609
11. Self-Contained Air Conditioners Water Cooled—Under 2 Hp.	214	63,305	....	....	13	2 557	227	65,862
12. Self-Contained Air Conditioners Water Cooled—2 Hp. and Up	523	304,006	1	542	2	1,200	526	305,748
13. Air Conditioners—Central Stations 5-Ton Capacity and Over	108	67,050	....	....	....	....	108	67,050
14. Air Conditioners—Floor Type (No High Sides)	145	63,792	....	....	15	4,027	160	67,819
15. Air Conditioners—Ceiling (Cooling Only—No High Sides)	255	39,950	1	199	41	4,782	297	44,931
16. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	48	26,286	....	....	3	1,680	51	27,966
17. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)	70	22,065	....	....	15	3,375	85	25,440
18. Condensing Units Less Than ⅓ Hp.	1,845	88,602	154	8,247	559	29,299	2,558	126,148
19. Condensing Units—⅓ Hp.	2,561	188,737	77	6,401	328	28,808	2,966	223,946
20. Condensing Units—½ Hp.	1,592	151,881	77	7,735	184	21,331	1,853	180,947
21. Condensing Units—¾ Hp.	884	116,840	43	5,630	184	26,648	1,111	149,118
22. Condensing Units—1 Hp.	530	86,378	26	3,968	78	14,401	634	104,747
23. Condensing Units—1½ Hp.	353	70,418	17	3,477	56	12,511	426	86,406
24. Condensing Units—2 Hp.	218	51,025	6	1,744	34	8,060	258	60,829
25. Condensing Units—3 Hp.	163	49,552	8	2,320	53	13,367	224	65,239
26. Condensing Units—5 Hp.	120	48,601	1	239	8	4,012	129	52,852
27. Condensing Units—7½ Hp.	91	55,769	....	....	7	4,389	98	60,158
28. Condensing Units—10 Hp.	61	43,433	1	449	6	4,485	68	48,367
29. Condensing Units—15 Hp.	66	59,169	2	2,202	1	909	69	62,280
30. Condensing Units—20 Hp.	52	53,948	1	1,295	3	3,989	56	59,232
31. Condensing Units—25 Hp.	21	23,485	....	....	....	....	21	23,485
32. Condensing Units—30 Hp.	37	53,186	....	....	2	2,730	39	55,916
33. Condensing Units—40 Hp.	15	20,470	....	....	....	....	15	20,470
34. Condensing Units—50 Hp.	20	42,051	....	....	....	....	20	42,051
35. Total—Lines 18 to 34 Inclusive	8,629	1,203,545	413	43,707	1,503	174,939	10,545	1,422.191
36. Total—Lines 1, 2, 4, 6, 8, 10, 11, 12, 35	24,701	....	1,243	....	2,069	....	28,013	....
37. Commercial Evaporators (Not Reported Above)	2,966	120,216	421	16,193	808	25,848	4,195	162,257
38. Air-Conditioning Evaporators (Not Reported Above)	334	61,759	1	1,106	....	....	335	62,865
39. Total Commercial & Air Conditioning	....	$4,059,812	....	$153,462	....	$289,214	....	$4,502,488

PREST-O-LITE TORCHES
Trade-Mark
are economical to operate





PREST-O-LITE Torches provide a high-temperature flame instantly. No time is lost for pumping or preheating. At any interruption of work, the gas can be easily shut off and the torch readily relighted, thereby saving gas. The intense heat of the flame materially shortens the time required for each operation.

Ask your distributor to demonstrate how these efficient Prest-O-Lite Torches, using Prest-O-Lite Gas, can enable you to achieve important operating economies on each soldering, heating or light brazing job.

Prest-O-Lite A-6105 Torch (illustrated) Price $2.50

THE LINDE AIR PRODUCTS CO.
Unit of Union Carbide and Carbon Corporation
UCC
New York and Principal Cities
In Canada:
Dominion Oxygen Co., Limited, Toronto

Ohio Locker Storage Finds Extensive Promotion Plan Obtains Renters

WOOSTER, Ohio—"Ask the Man Who Rents One," is the sales slogan used by the Community Food Storage plant here, and that slogan has helped to rent 80% of the plant's 500 lockers since last August.

But the slogan alone is not the whole story of how the locker storage idea was sold to the citizens in the rich farming area of Wayne county. Rather, it is but a part of an intelligent selling program.

No "trick" selling devices are used, nor does the management offer free trial storage to patrons. The management believes that each prospect must be sold "individually," and that it is very necessary to sell the "idea" (of locker storages) first of all.

As part of the selling campaign, form letters are sent out to prospects. Form letter sent to city prospects differs from that sent to farmers (rentals at present are split about 50-50 between city and rural patrons).

SELLING POINTS

Main points brought out in the letter to farmers are:

1. Luxury of fresh meats and vegetables the year around.
2. The advantages of butchering in the fall and early winter months (a strong selling point for farmers because it eliminates the need of feeding animals during the winter), and the advantage of being able to butcher the livestock as the need arises, rather than waiting for a favorable market.
3. The low rates for processing.
4. Low cost of locker rental ("less than 84 cents per month on a yearly basis or less than a postage stamp a day").

To the city prospects, the promotion letter covered these points:

1. Luxury of tender meats and vegetables correctly processed and hung.
2. Luxury of fruits, fish, meats, and vegetables out of season.
3. The economy of buying in large quantities.
4. A statement that the locker plant management had made arrangements to buy meat for city purchasers from farm friends with ultimate savings to the user of as much as $100 per year.

TYPICAL ITEMS

Both letters include lists of typical items that could be stored at the plant:

(Meat) beef, lamb, pork, fish.

(Fruits and berries) strawberries, raspberries, blueberries, cherries.

(Vegetables) peas, corn, lima beans, asparagus.

As another part of its promotion program the plant management has put up "murals" in the form of enlarged pictures showing local citizens using their lockers.

For the convenience of their patrons, the management of the plant sells Honor Brand frosted foods, and in addition to this many of the patrons are taking advantage of the fast-freezing processes offered by the plant, and are putting up their own cold pack fruits and vegetables.

According to local authorities, refrigerated locker plants had been unheard of prior to the 1936 Fall Fair of Wooster, at which time a sample locker plant was exhibited. Early in 1937, the W. E. Guest Co., engineering contractors of Chicago, contracted with a general contractor by the name of Lake L. Webb to build a new 50 x 50-foot brick building to house the new plant.

In August of 1937 the plant was opened under the ownership of the Guest Co. and was transferred later in the year (about November) to the ownership of a group of Cleveland investors.

Mr. Webb is a patron of the plant and is enthusiastic about its possibilities for the city user. Last fall he bought from Armour & Co. a 300-lb. side of beef at a cost of 20 cents a pound. This was grade "A-1" stamped beef.

He had the beef processed at a cost of 1½ cents per pound, which meant that he had steaks, roasts, and the like ready for consumption at a cost of 21½ cents per pound, as against retail meat market prices in Wooster of 40 to 50 cents per pound for round steak.

USER'S EXPERIENCE

This beef lasted Mr. Webb until the first of the year when he took delivery on a hog and a half. (It seems that he and a friend had bought three young pigs and waited for them to grow up, splitting them after they had been butchered.) Mr. Webb declares that he still has some of this pork on hand.

Mr. Webb also stored a couple of "wash tubs full" of green beans and has been enjoying these regularly this spring, as well as corn on the cob, which he stored last fall. He estimates that he will have saved $50.00 on his meat bill for the year, as well as having the luxury of fresh fruits and vegetables the year around.

Mr. Webb believes that small towns represent the best locale for locker systems because they are more stabilized, and the residents have quicker access both to the locker plant, and to the farmer from whom they can buy the stuff to be stored.

Larger cities also offer the problem of rapid turnover of population, frequent moves around the city, and the fact that city people are used to getting fresh fruits and vegetables the year around, a fact which does not hold true in the small town.

REFRIGERATION UNIT

The 500-locker plant is refrigerated by means of a 7½-hp. ammonia compressor. Pipe coils, 2½ inches in diameter, are used in the locker and freezer rooms and twin blast coolers are used in the chill room.

The building, a one-story structure of bright red Wooster brick, is insulated with 4 inches of cork. The freezer rooms are insulated with 8 inches of cork.

In the freezer room, three banks of steel coils in horseshoe shape maintain a temperature of —10° F. A heavy wire is placed over the coils, to form a shelf on which the packages to be frozen are placed. The locker room is held at 10° F., and the chill room at between 32 and 35° F.

Year-Around Conditioning, Glass Brick Improve Working Conditions In New Printing Plant

BALTIMORE — Air conditioning has become an important factor in the commercial printing industry, according to a booklet entitled "Design for Working," issued by the Waverly Press, describing its new plant at Mt. Royal and Guilford Aves. here.

The building is fireproof, soundproof, and is built with glass brick instead of windows to reduce the transmission of heat. Insulation in the roof of the building is 2-inch Celotex, making the building easy to heat in winter and cool in summer.

Cooled by a 40-ton York refrigeration machine, the building is said to have the lowest gross operating cost obtainable in a structure of this kind.

WANTED CONDITIONING

"With no windows, air conditioning was of course demanded, but we wanted air conditioning anyway, if we were going to capture that May morning 365 days of the year," the booklet relates. "We wanted air conditioning without compromise, yet inexpensive to operate. We got it.

"Our system, the central-station type, is a product of the York Ice Machinery Corp. A large fan draws air in from the outside. This is mixed with recirculated air from the building, and passed through fine copper-wool filters to remove dust and dirt.

"During cold weather, air passes through a bank of copper-fin radiators and then through a water spray, before it is blown to the floors above. Automatic controls on each floor maintain a constant temperature of 70°, and a relative humidity of 50%.

"Gone forever are the drawbacks of familiar heating systems. A building is usually heated with either radiators or unit heaters of the convector type. Humidities above 25% are impractical, because of the severe sweating of cold window panes and of the poorly insulated walls.

"Therefore the air is dry, dry as desert air. Furthermore, high temperatures are necessary to prevent chilliness, although they cause a stuffy feeling calculated to make one dopey, and this is aggravated by the lack of a formal means of adding fresh air to combat odors.

"The reason for high room temperatures is interesting. The human body loses heat by convection if the surrounding air is cold, and by radiation if the walls and ceilings are cold.

RADIANT HEAT LOSS

"According to experiments, an outside zero temperature results in a temperature of 18° F. on the inside surface of the window pane. It follows that an air temperature of between 77° and 80° must be maintained to offset the high radiant loss from the body to the cold window.

"When stuffiness thus produced becomes intolerable, someone opens a window. Those sitting near the window become chilled, the room is filled with drafts, and the cycle repeats itself.

"In our new building, the glass bricks are relatively warm on the inside, only a few degrees lower than room temperature. There is no condensation, owing to the maintenance of 50% humidity. A room temperature of 72° gives a stimulating temperature without chilliness, because little radiant body heat is lost to the walls. There is no stuffiness, no drafts, and no arguments about opening or closing the windows. Moreover, less steam is required to heat our building than a steel sash building twice its size.

"During the hot weather, the circulating fan pulls the air through a cooling coil that not only cools it, but dehumidifies it by condensation. A special by-pass permits constant dehydration without overchilling. Automatic controls on each floor maintain a relative humidity of 50% and a temperature of 15° cooler than outside air, with a minimum of 80°.

LOW OPERATING COST

"The low operating cost of the outfit is one of its stellar features. The same glass brick and insulated roof that saves so much steam in winter saves just as much refrigeration in summer. A 40-ton Freon compressor is oversize for the job, and the cooling water for the compressor, a big item in most air-conditioning systems, is pumped to the roof where it is sprayed, cooled, and used over again.

"This not only saves $500 annually in water cost, but keeps the roof cool, lengthens its life, and further reduces the heat-gain of the building.

"The glass brick and air conditioning together spell building maintenance so low as to be forgot. Only dirt-free air is allowed inside. . . ."

Cooling Improves Efficiency Of Newspaper Workers

FRESNO, Calif.—Efficiency and health of the editorial, engraving room, and office workers of the McClatchy Publishing Co.'s Fresno Bee and radio station KMJ has been improved since the installation of an air-conditioning system last year.

The year-around conditioning system supplies air to the entire annex building of the Bee and the general offices of the old building. The annex to the Fresno Bee houses the engraving plant and the studios of station KMJ.

After a year's test of the system, the management reports that employes in the offices and engraving department are able to do better work in the air-conditioned atmosphere, and that less time has been taken off for sickness.

In addition, the engraving processes were speeded by the maintenance of the correct humidity and temperature.

Conditioning Eliminates Gas Fumes From 'Road House'

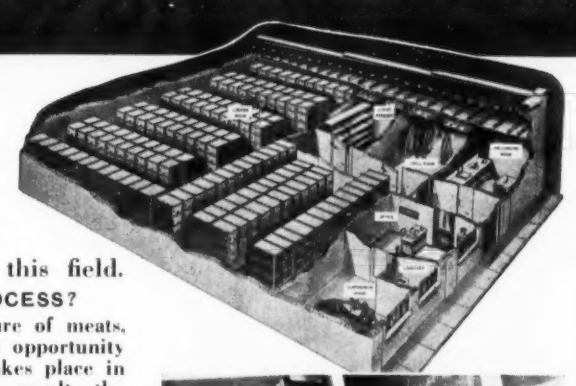
RUSSELL, Kan.—A Carrier air-conditioning installation has been installed in Billings Tower here, a combination gas station-night club-cafe on the main east-west highway.

One of the main functions of the air-conditioning system is to remove all trace of gas and oil fumes from the air in the night club. It also removes tobacco smoke from the low-ceiling cafe and provides cooling.

Clarksburg, W. Va. Beauty Shop Gets Conditioning

CLARKSBURG, W. Va. — First beauty shop air-conditioning system in Clarksburg recently has been installed in the El Dora beauty shop by Monongahela West Penn Public Service Co., under the direction of W. C. Wade, commercial representative. The system is of 5-hp. capacity.

The Inside Story
OF A BAKER COLD STORAGE LOCKER PLANT



Baker pioneered the cold storage locker plan more than a dozen years ago. Since then, BAKER engineers have originated most of the important advances in this swiftly-growing industry, and today the BAKER Cold Storage Locker Plant is nationally recognized as the leader in this field.

WHAT IS THE FRESH-FROZEN PROCESS?

Fresh-freezing consists of reducing the temperature of meats, fruits and vegetables so quickly that there is no opportunity for changes in their cellular structure such as takes place in the case of ordinary, harmful freezing. As a result, the original freshness and flavor are positively preserved instead of being changed or destroyed. Vitamin content is retained. Meat is made 20% more tender, and loses 80% of its original bacteria content. When these foods are taken out of storage, even though it may be months later, they are just as tasty as the day they were taken from the garden, orchard or slaughter pen.

THE COLD STORAGE LOCKER PLANT

Essentially all cold storage locker plants are composed of a chill room, a process or cutting room, sharp freezer room, locker room, reception room, office and machinery room, varying in size and design to suit the individual requirements.

THE CHILL ROOM

After butchering, the animals are immediately hung in the chill or curing room where the temperature is held at 33° by using overhead pipe coils with drip pans. The meat is kept there until all animal heat is removed. (The time may be extended as long as the customer wishes to age the meat. This period may run from 48 hours to a week.)

THE PROCESSING ROOM

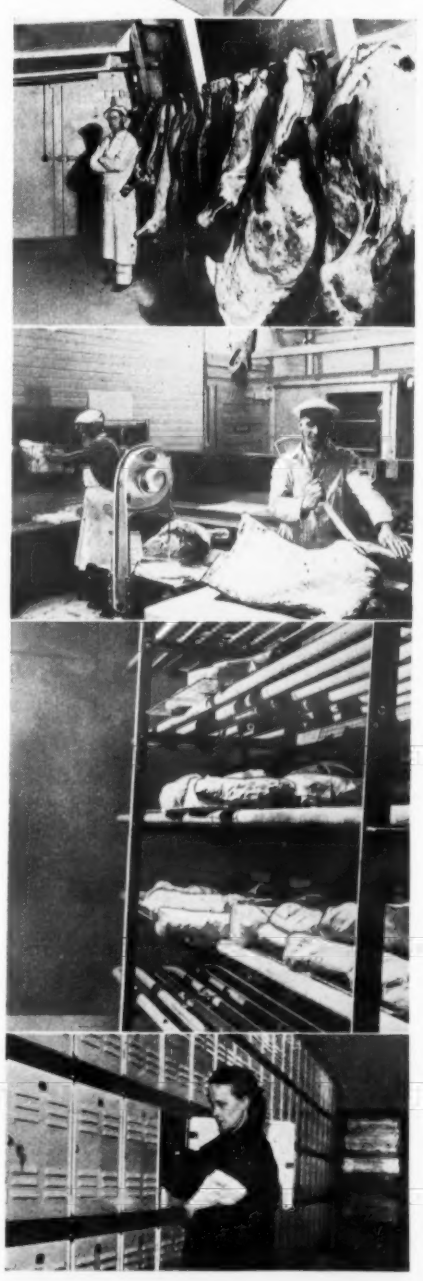
After the meat has been thoroughly chilled or aged, it is taken to the processing room. Here, the plant butcher cuts the meat into steaks, chops and roasts as desired by the customer. Each cut is wrapped in parchment, labeled and placed in the sharp freezer. The processing rooms of many larger plants resemble miniature packing plants, having facilities for slaughtering, hamburger grinding, sausage manufacturing, pickling, and curing and smoking meat . . . in fact, everything except rendering.

THE QUICK FREEZE ROOM

After being processed and wrapped, the packaged meat is delivered to the quick freezing room where a temperature of 10° below zero is maintained by using shelf and overhead coils. Here, too, fruit and vegetables are quick frozen. This process positively preserves the color, flavor, and food value so that months later they will be garden-fresh.

LOCKER STORAGE ROOM

When the food is thoroughly frozen it is placed in the patron's individual locker in the locker room, to which only he and the plant manager have the keys. Locker room temperatures are maintained at 10° above zero, by overhead pipe coils. Lockers are easily accessible and may be visited as often or as seldom as desired.



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Raising Standard Of Living For Small Towns

BORN of the depression, locker storage has come to be one of the most important commercial developments of the last five years. Although the total of such installations probably does not exceed a thousand, already they have exerted vast influence on the eating habits and privileges of rural folk in the Northwest, Middle West, and Far West.

They have raised the standard of living in small towns.

Incidentally, they have brought a new and profitable market to several branches of the refrigeration industry—notably the manufacturers and distributors of compressors, coils, controls, and insulation.

Profits Up To $12,500 Per Annum On 500 Lockers

At a cost of $20 to $50 per locker (depending upon the completeness and quality of the installation) one can put up a locker storage plant of from 350 to 500 lockers. According to current figures, the annual profits on such an establishment should range up to $12,500. The original cost is usually quickly amortized.

Just who first thought of the locker storage idea and put it into operation has not yet been definitely established, there being several claimants. But it got its first real push about five years ago when a couple of the big national dairy companies conceived the notion of building locker storage facilities in connection with small dairy plants they controlled all over the country.

The Packers Consent Decree—which prevented the dairy chains as well as the packers from engaging in retail trade—checkmated their move before it was well under way, but the studies in which they engaged have been used as the basis for the erection of numerous locker storage plants by individual entrepeneurs.

Under the direction of W. E. Guest, who at that time was chief engineer for the Kraft-Phenix Cheese Co. and who had been assigned to the locker storage job by the National Dairy Co., research at Ames College revealed that while chilling doesn't kill trichinae or botuli (microorganisms which cause food poisoning) sharp freezing at low temperatures does.

Low Temperatures Kill Food Poison Bugs

Meats, fruits, and vegetables all were inoculated with these organisms, and it was well established that sharp freezing not only preserved the foods but prevented their organic contamination. On the basis of these studies, locker storage became a low-temperature proposition. Incidentally, it would appear that locker storage is leading to a revival of the quick-frozen foods industry.

To small-town folk, locker storage brings good meats in excellent condition at low prices (reports show savings as much as $100 a year through use of locker storage). It also brings the luxury of fresh fruits, vegetables, and fish out of season. Corn-on-the-cob at Christmas time is said to be the most dramatic example, and one of the best selling points to prospective customers.

Eliminates Necessity Of Winter Feeding

To the farmers, locker storage affords the opportunity of butchering "when the frost is on the punkin," eliminating the cost of feeding animals through the winter months. Thus they can butcher at any time, and sell when the market is most advantageous. Incidentally, the farmer can also be assured of fresh vegetables and fruits, as well as meats, for his own table at all times.

To the promoters, investors, and operators, locker storage offers excellent immediate profits, as well as a stable long-term proposition.

New Field Especially Welcome Now

To manufacturers and jobbers, this new field affords profitable volume at a time when such volume is indeed most welcome.

In communities where locker storage facilities are now available, housewives are now giving up the drudgery of canning—for low-temperature storage gives them *fresh* foods at a cost comparable with that of canning, and certainly at much less cost to face, hands, and disposition.

Plants Should Equip To Process Vegetables

It should be noted that many locker storage plants are not equipped for the processing of fruits and vegetables—thus missing an opportunity for high profits. For it is in the availability of fruits and vegetables out-of-season that locker storage provides its most eloquent appeal.

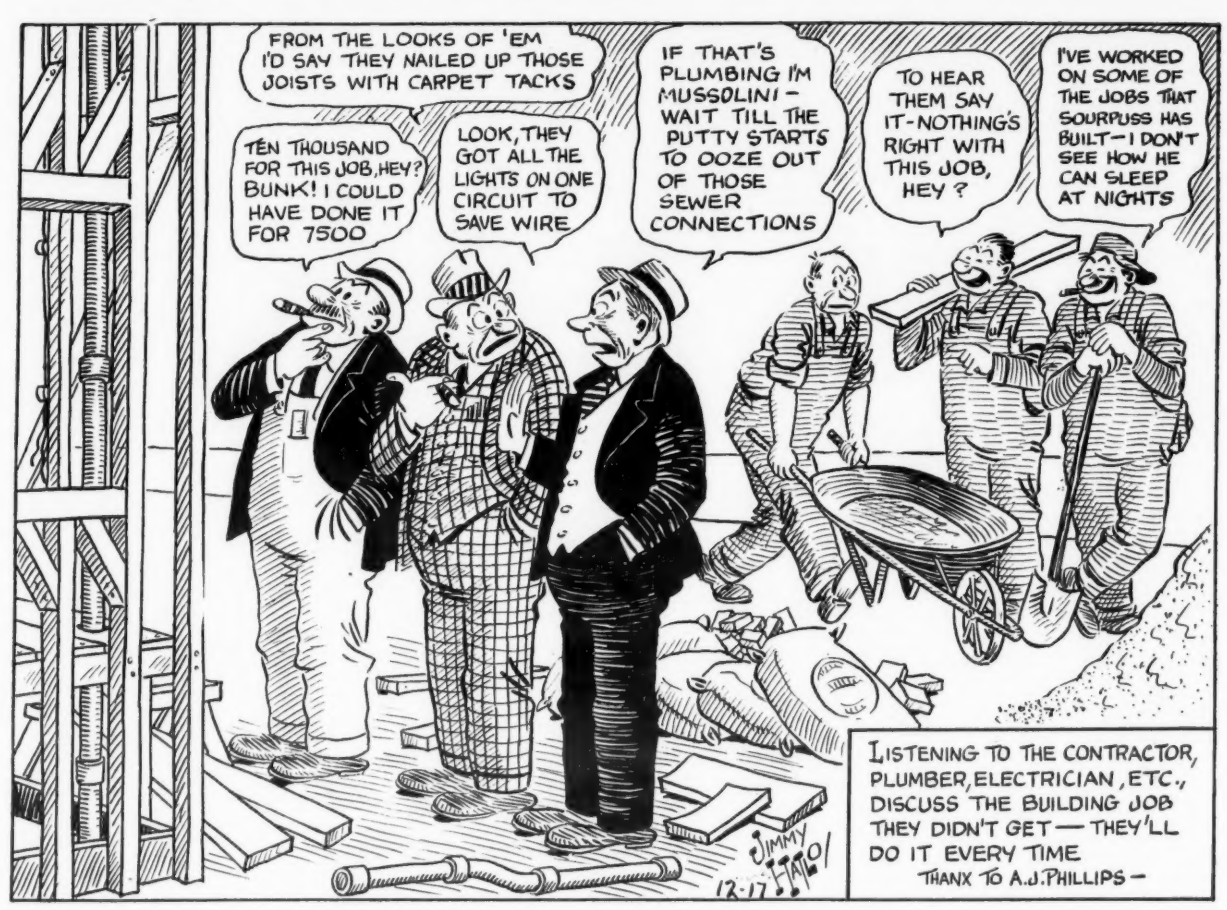
When properly processed and quick-frozen, such vegetables as peas, beans, spinach, corn, asparagus, and broccoli will have a uniformly fine flavor and texture equivalent to that of vegetables fresh from the garden.

Processing is simple, including blanching, chilling, packaging, and quick-freezing. The processing of fruits and berries lends itself equally well to the locker storage plant. Usual charge for this complete service runs around six cents per pound, which is less than the cost of cold-pack canning of the same products at home—an infinitely less satisfactory method of storage.

With the same processing equipment, lard can be rendered, and hamburger and sausage ground—thus adding to the services, profits, and savings of locker storage.

Here is a big new market for refrigeration equipment and engineering which has opened up at a most opportune time. It is capable of wide expansion, and should be given serious and immediate attention by everyone in the industry who can adapt his products and his services to the field.

They'll Do It Every Time . . . by Jimmy Hatlo


FROM THE LOOKS OF 'EM I'D SAY THEY NAILED UP THOSE JOISTS WITH CARPET TACKS
TEN THOUSAND FOR THIS JOB, HEY? BUNK! I COULD HAVE DONE IT FOR 7500
LOOK, THEY GOT ALL THE LIGHTS ON ONE CIRCUIT TO SAVE WIRE
IF THAT'S PLUMBING I'M MUSSOLINI — WAIT TILL THE PUTTY STARTS TO OOZE OUT OF THOSE SEWER CONNECTIONS
TO HEAR THEM SAY IT-NOTHING'S RIGHT WITH THIS JOB, HEY?
I'VE WORKED ON SOME OF THE JOBS THAT SOURPUSS HAS BUILT—I DON'T SEE HOW HE CAN SLEEP AT NIGHTS
JIMMY HATLO 12-17
LISTENING TO THE CONTRACTOR, PLUMBER, ELECTRICIAN, ETC., DISCUSS THE BUILDING JOB THEY DIDN'T GET — THEY'LL DO IT EVERY TIME
THANX TO A.J. PHILLIPS —

LETTERS

Getting a Proper Start In Refrigeration

The Trailblazers
123 West Park Ave., Champaign, Ill.
Publisher:

A copy of "Your Place In Life," in the accompanying envelope, is sent to you for two reasons:

(1) The name of your magazine appears in the bibliography. Please check and report errors, if any.

(2) Because you are doubtless consulted from time to time by persons who are interested in the vocational aspects of refrigeration you may find it more convenient to refer them to this volume than to attempt to give them information in a letter.

This book will be mailed anywhere in the United States on receipt of 25 cents in coin. At this price a wealth of dependable information is brought within the reach of the masses who need it most, but who, until now, have been singularly neglected by all publishers of vocational books.

"Your Place In Life" discusses 22 major vocations and indicates 38 associated ways of making a living. It contains some 75,000 words of editorial material that have been prepared for our exclusive use and published for the first time, in addition to a bibliography of 280 volumes.

If you think well enough of the ideas back of "Your Place In Life," and Mr. Woolrich's chapter in particular, to mention it in your next issue, it might be possible, through your interested assistance, to accelerate the distribution of this knowledge among people who might otherwise never have access to it.

A proof of your review or notice would be appreciated, as would your criticisms, comments, or suggestions.

JOHN B. MCDONNELL,
Editor

Answer: Referring to the data on refrigeration, including air conditioning, on page 32, it appears that Prof. W. R. Woolrich is not familiar with most popular series of books on these subjects. Most of those which he has listed deal with ammonia-type equipment whereas a large percentage of the refrigerating units being sold today use Freon, sulphur dioxide, or methyl chloride.

Enclosed you will find literature describing a series of Household Refrigeration Service Manuals giving practical information for the beginner. Thousands of copies of these books have been sold and they are widely recognized as the best available information covering all makes and types of equipment. These books are sold by all the leading refrigeration supply jobbers throughout the country.

Also note that there is an advanced series dealing with Commercial Refrigeration Service, also a complete course of study covering the subject of Air Conditioning.

Regarding the training of young men for refrigeration and air conditioning, particularly those who cannot go to college, reference should be made to Refrigeration & Air Conditioning Institute, 2150 Lawrence Ave., Chicago, Ill., and Utilities Engineering Institute, 404 N. Wells St., Chicago, Ill., both well recognized in the industry. These schools have trained thousands of young men for practical jobs in refrigeration and air conditioning.

Under associations, the book lists the Air Conditioning Manufacturers Association, American Institute of Refrigeration, and National Association of Ice Industries, none of which would be of much help whatever to a young man looking for a job in these fields. The Refrigeration Service Engineers Society, which is *not* mentioned, might be of some help to a beginner.

If you have occasion to revise this book, I would suggest that you get someone to write on refrigeration and air conditioning who knows what is going on at the present time. It is evident from the final paragraphs under the sub-head "How To Get Started" that Prof. Woolrich hasn't the slightest idea on how anyone could get started in refrigeration and air conditioning.

Resents Implication That Desert Cooler Is 'Jillopy'

Air Rite, Inc.
2218 West Seventh St.
Los Angeles, Calif.
May 31, 1938

Editor:

Please enter our subscription for one year for the AIR CONDITIONING & REFRIGERATION NEWS.

The article entitled, "Dealers In West Pave Way with Desert Coolers," appearing in your publication under date of April 27 was called to the writer's attention about that time and I intended then writing you, but press of business at this time of year has been such that this is the first time I have had to express myself regarding this article.

Having been in the desert cooler manufacturing business for several years, I was somewhat pushed out of shape over the phrases used in this article, such as "jillopy devices," "nuisance to operate," etc., and while I will grant desert coolers are not the most handsome things to look at, the comfort and pleasure derived from them by thousands of people in our dry and arid sections of the west, when temperatures reach as high as 127° in the shade, and no shade, has made the evaporative type of cooling, through its low cost, a godsend to the people subjected to this extreme heat.

Your staff are undoubtedly ignorant of the conditions existing in the southwest section of the United States and cannot be blamed for expressing views of some outsider. However, for your information, we are enclosing a circular descriptive of our 1937 line, together with one descriptive of our 1938 line. For your information we are also enclosing a circular of Sears-Roebuck, which line we manufactured for this firm last year, and they experimented with evaporative coolers in seven of their retail stores through southern California and Arizona, and the success of evaporative coolers in these stores justified this firm manufacturing their own evaporative coolers at a Chicago factory for 1938.

Also, such stores as Firestone Tire Co., Montgomery Ward, and other national chain stores handle evaporative coolers.

Up to this year there have been only two Los Angeles manufacturers of evaporative coolers, namely Utility Fan & Mfg. Co., and Air Rite, Inc. However, this year there are a number of new local and southern California manufacturers in this field.

We are branching out to a larger area this year with results far beyond our expectations, including such states as Texas, Oklahoma, Utah, Nevada, Montana, Wyoming, and New Mexico, having learned climatic conditions in these states are very favorable toward evaporative cooling.

We now have eight men on our selling staff and are interested in securing western distribution on some kindred line that might fill in during our dull season, which extends from September to April. Should you know of any manufacturers in the east desiring representation in the west, we would appreciate your advising us accordingly.

FRANK C. WOLTER,

Sees Good Sales Dope In Locker Issues

Mullen Bros. & Co., Inc.
Engineers and Contractors
1036 Main St., Dubuque, Iowa
June 4, 1938

Sirs:

We received the June 1 issue of REFRIGERATION NEWS showing the write up on cold storage locker systems.

We would appreciate your sending us 25 copies of this issue and also 25 copies of the June 8 issue on the same subject.

We are ardent salesmen of cold storage locker plants and this article we want to show to locker prospects and those interested in plant construction work.

You can send the 25 of the first edition now and bill us or send them c.o.d. if you wish and next week send out the 25 copies of the second issue.

J. W. LUNDON,
President

Distributor-Dealer Doings

Chicken With Every Roaster Offered In Campaign Sponsored By Washington, D. C. Institute

WASHINGTON, D. C.—A chicken in every pot, and every pot an electric roaster—that's the platform which Electric Institute of Washington has established for the electric roaster campaign which it is currently sponsoring. The drive opened May 23 and will continue until July 11.

The institute will go the Hoover presidential platform one better by promising purchasers of electric roasters not only a 4-lb. chicken, but also detailed instructions for preparing and cooking the chicken as well as a complete meal to go with it.

Every possible precaution is being taken to insure the success of the first meal cooked in each roaster sold, reports J. S. Bartlett, institute manager, for this important psychological barrier must be cleared in every instance if the product is to have a good user foundation.

"Trouble shooters" are maintained for the express purpose of giving immediate attention to any difficulties reported by purchasers. By simply mailing a card which is enclosed with each recipe book, a new user may request a home service call. These calls will be made by employes of Potomac Electric Power Co.

Cost of the promotion is being divided between the institute, the retailer, the distributor, and the manufacturer.

To introduce the drive, Western Union messenger boys are delivering a 28-page, two-color booklet of roaster literature to some 8,000 apartment house tenants with the greeting: "Here is a suggestion for keeping your kitchen cool this summer."

Inserted in this booklet will be a six-page buyers' guide, in which one page will be devoted to each of the six makes of roasters sold in this territory. This guide also will list all retailers who are cooperating in the campaign, and will give the prices and specifications of each line.

In addition, a direct-mail piece will be sent to about 30,000 prospects.

In an attempt to make the promotion more effective, a different angle is being used on each type of housewife. "The appeal is made more effective," explains Mr. Bartlett, "if homemakers are divided into such classifications as 'employed housewife,' 'young mother,' and 'club woman.' This specialized presentation forms the groundwork essential to every well-constructed sale."

Posters prepared by the institute and installed with floor displays in the first-floor showroom of Potomac Electric Power Co. (a non-merchandising utility) are addressed to these various types of roaster prospects.

A comprehensive one-week training plan for demonstrators and sales people is one of the main features of the plan. The institute agrees to pay any cooperating retailer $15 to cover services of a girl employe who is relieved of her regular duties in order that she may take the training course.

In the case of small retailers, who must hire a special girl for this purpose, the institute pays the dealer $5 at the end of the training week, $5 at the end of her first week of sales employment, and the final $5 at the end of the second week.

The training school deals in sales fundamentals, principles of sales demonstration, utilization of the roaster, and actual selling experience. A general "how to sell roasters" session was included for the benefit of the entire local appliance trade.

Cooking School Promotes Range Sales

SAGINAW, Mich.—With three actual sales and 10 definite prospects as concrete results, a three-day cooking school staged here recently by Sutton Sales Co., General Electric appliance dealer, has proved highly successful as an electric range promotion scheme, stated W. J. Richter, manager.

Cooking demonstrations were presented, one each day for the three days, in the sales room, the Sutton unit kitchen display being used for the purpose.

Front section of the store was cleared of floor models and converted into a temporary "theater," with the unit kitchen as the stage and chairs arranged in rows for the audience.

Mr. Richter explained that the unit kitchen was used for demonstration because it is the company's plan eventually to sell a complete kitchen to its customers, and by seeing the display kitchen in actual use the women attending the cooking school were likely to form a desire for a similar kitchen of their own.

About 200 women came to the three schools, Mr. Richter said. A newspaper advertisement announced the cooking schools, and post card invitations were mailed to a select group of prospects.

McCoy Handles Westinghouse In Springfield, Ohio

DAYTON, Ohio—McCoy Coal & Lumber Co., Springfield, Ohio, has been appointed dealer for American Sales Co., Westinghouse distributor, reports Theodore Goldenberg, Dayton branch manager.

Charlotte, N.C. Appliance Outlet Expands

CHARLOTTE, N. C.—W. L. Phelps Refrigeration Co. has moved to larger quarters at 228 S. Church St. here. The company of which W. L. Phelps is owner handles Hotpoint electric refrigerators, washers, and ironers, Pelco beverage coolers, and Hussmann commercial cases and coolers.

Lacroix's Named Exclusive Westinghouse Dealer

GREENFIELD, Mass.—Lacroix's Electric Shop has been appointed exclusive agency for Westinghouse electrical appliances in Greenfield and vicinity. Emil E. Deneault is manager.

Continental Appoints Calif. Distributor

LOS ANGELES—Watson & Wilson, Inc., has become refrigerator distributor in southern California for Continental Corp., Fond du Lac, Wis.

Nashville Wholesaler Is Organized

NASHVILLE, Tenn.—Electra Distributing Co. has been established at 1603 Church St. here, with Irving Silver as manager, to deal in wholesale refrigerator and radio parts.

Wisconsin Group Selects New Committees

MILWAUKEE — Appointment of chairmen for several new committees of Wisconsin Radio, Refrigeration & Appliance Association, set up under the association's recently adopted reorganization plan, has been announced by president Frank W. Greusel.

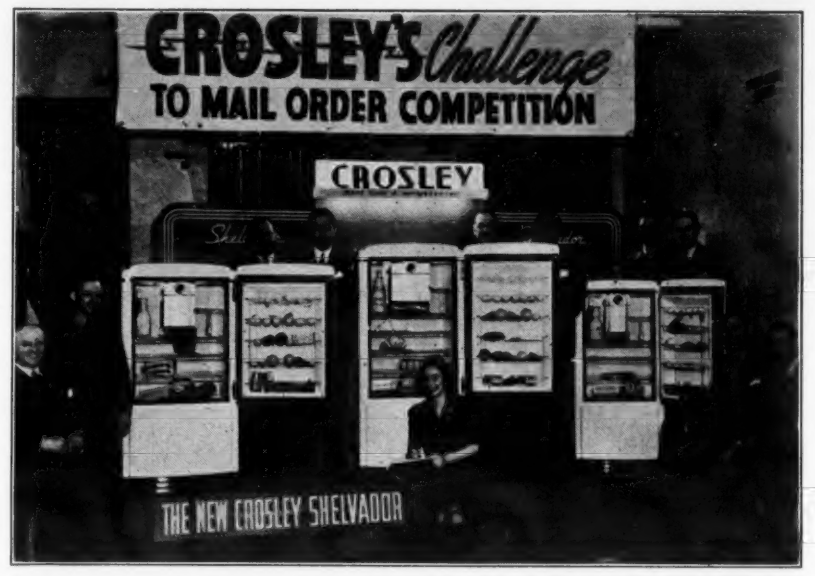
New committees and their chairmen are: public relations, P. R. Poole, General Electric Supply Corp., chairman; legislation, Ralph Harkins, Graybar Electric Co., chairman; merchandising, A. Van Antwerpen, Radio Specialty Co., chairman; contacts with manufacturers, A. C. Schleiger, Shadbolt & Boyd Co., chairman; membership, George Inghram, Droegkamp-Inghram Co., chairman; golf, E. H. Schaefer, E. H. Schaefer Corp., chairman; entertainment, Gordon Ische, Ische Bros. Radio Co., chairman.

Detrola To Hold Radio Preview June 27, 28

DETROIT—Present and prospective members of Detrola Corp.'s radio distributing organization will preview the company's 1939 radio models at a two-day convention in the Fort Shelby hotel here June 27 and 28, announces Sales Manager J. J. Davin.

He also announced that refrigerators and radios manufactured by Detrola Corp. have been declared eligible for financing under EH & FA.

Crosley Builds For a 'Buyer's Market'



Theme in Crosley's campaign which features new low-priced refrigerators designed to fit "today's purse," is given in the banner over this display in the Windsor room of Apollo Distributing's headquarters in Newark. Male members of the distributor's staff in this picture are (left to right) Jack Edelson, Harry Epstein, Maurice Gilbert, Joseph Hecht, John Compli, Edward Adams, Harold Bergman, Richard Schill, David Cooper, Fred Goldberg, and David Slabodien. The girl is Sylvia Geller.

New Wholesaler To Cover Northern Mississippi

COLUMBUS, Miss. — Tennessee Valley Electrical Co., with headquarters in Tupelo, Miss., has opened a wholesale electrical appliance office here. G. W. McCarter is in charge.

Gray-Henry Co. Named Airtemp Dealer

BAY CITY, Mich.—The Gray-Henry Co., owned by Jack Gray and Ernie Henry and maintaining offices here and at Midland, Mich., has been named dealer for Airtemp systems.

MASTERCRAFT
ADJUSTABLE PAD AND CARRYING HARNESS
The most efficient and economical equipment made for handling refrigerators safely and without scratching or marring. Pad is separate from harness and both adjustable to all styles and sizes of cabinets. Efficient, sturdy, easily and quickly applied. Name of refrigerator attractively lettered on pad without charge.

Adjustable Pad, $9.50 each
Adjustable Harness $6.00 each f.o.b. Chicago.
Write for 1938 folder and prices on pads for refrigerators, washers, ironers, ranges, radios, etc.
Pat. Appl'd for
BEARSE MANUFACTURING CO.
3815-3825 Cortland Street, Chicago, Illinois

Fifteen in ONE

All the advantages of all the old-fashioned types of insulation, plus many exclusive features, are incorporated in Fiberglas—the modern insulating material. The proof of what manufacturers of equipment requiring insulation think of Fiberglas is readily found in the long list of products which utilize it. . . Marine Boilers, Stoves, Locomotives, Busses, Refrigeration Cars, Ships, Trucks and Passenger Coaches all use it to assure greater efficiency with reduced operating costs. For full information and samples, write the Industrial and Structural Products Division . . . Owens-Illinois Glass Company, Toledo, Ohio.

1. Light Weight (from 1¼ lb. per cu. ft. up)
2. Non-Inflammability
3. Extremely Low Moisture Absorption
4. High Insulating Value
5. Freedom from Rotting
6. Rodent-, Vermin- and Termite-Proof
7. Fungus- and Bacteria-Proof
8. Permanence
9. Sulphur-Free and Non-Corrosive
10. Resistance to Acids
11. Resiliency and Flexibility (Non-Settling)
12. Sound Absorption
13. Freedom from Odors
14. Non-Absorption of Odors
15. Ease and Economy of Installation

FIBERGLAS Insulating Wool is manufactured by the OWENS-ILLINOIS GLASS COMPANY, world's largest manufacturers of GLASS CONTAINERS, and producers of FIBERGLAS Insulating Blankets and Electrical Insulation, DUST-STOP Replacement-Type Air Filters and INSULUX Glass Block.

OWENS-ILLINOIS
Fiberglas
THE MODERN INSULATION

HERE ARE
3 BIG REASONS why
SPORLAN VALVES
give PERFECT PERFORMANCE

1 Only Sporlan
specialize exclusively in Thermostatic Expansion Valves . . . therefore only Sporlan engineers can devote all their time to thermostatic expansion valve developement.

2 Only Sporlan
offers Thermostatic Expansion Valves specifically designed for ALL Refrigeration and Air Conditioning applications . . . therefore only in Sporlan will you always find the right valve for the job.

3 Only Sporlan
offers a complete line of Thermostatic Expansion Valves for ALL Refrigerants . . . in ALL capacities and with ALL types of connections . . . therefore whatever capacity is required, whatever style of connection is preferred, or whatever refrigerant is used . . . there is a standard Sporlan valve to fit it.

TYPE H
0 to 3 tons Freon
0 to 6 tons Methyl Chloride
TYPE R
1 to 10 tons Freon
2 to 20 tons Methyl Chloride
TYPE S
6 to 20 tons Freon
12 to 40 tons Methyl Chloride
TYPE O
1 to 10 tons Freon
3 to 20 tons Methyl Chloride
TYPE P
6 to 20 tons Freon
12 to 40 tons Methyl Chloride
TYPE T
20 to 50 tons Freon
40 to 100 tons Methyl Chloride
TYPE L
0 to 6 tons Freon
1 to 12 tons Methyl Chloride
TYPE N
0 to 15 tons Ammonia
TYPE C
0 to 15 tons Ammonia
TYPE A
15 to 100 tons Ammonia

Eliminate Poor Performance Headaches! Stop Expensive Service Calls! Assure yourself of perfect performance by Standardizing on
SPORLAN THERMOSTATIC EXPANSION VALVES
SPOEHRER-LANGE COMPANY
3725 COMMONWEALTH AVE. · ST. LOUIS, MO.

Methods Of Preparing Vegetables and Fruits For Freezing Are Outlined

By Donald K. Tressler
(New York State Agricultural Experiment Station, Geneva, N. Y.*)

FRUITS and vegetables may be successfully preserved by freezing on a small scale provided care is exercised in the selecting, preparation, packaging, and freezing of the products. If the prepared product is chilled just before packaging, fruits may be satisfactorily frozen in ordinary cold storage rooms maintained at 10° F. or below.

Vegetables require a somewhat lower temperature; in general, rooms maintained at 0° F. or below should be used, and the product should be stacked in such a manner as to assure good circulation of air around each package.

Further, it is important that the capacity of the refrigerating machine and the coil area of the cold room be sufficiently great to maintain the proper temperature in the room during the freezing of the products

PREPARATION OF VEGETABLES

Vegetables used for freezing should be carefully selected. Variety, maturity, and freshness must be considered if a first-class product is desired. Starchy peas and lima beans, tough fibered asparagus, overmature snap beans and sweet corn will not yield products of good quality.

Further, it should be held in mind at all times that many vegetables deteriorate very rapidly if held at 70° F. or above after harvest. Asparagus, spinach, peas, lima beans, snap beans, sweet corn, cauliflower, and broccoli lose their flavor and sweetness quickly at room temperature. If, therefore, these vegetables cannot be prepared for freezing immediately after harvest, they should be kept in a cellar, ice house, or some other cool place.

PEAS

Peas are the most popular of all the frozen vegetables and the one most commonly packed. Because of the necessity of hand shelling; preparation on a small scale is tedious. However, the procedure is simple: Freshly picked peas of the proper variety and maturity are shelled by hand or machine.

The shelled peas are screened in order to eliminate the very large overmature and very small undermature peas. The screened peas are washed in clean cold water and then blanched (scalded) for one minute by immersion in a large amount of rapidly boiling water.

At least one gallon of boiling water should be used for each pound of peas. A wire basket may be conveniently used as a container for immersing the peas.

Immediately after scalding, the peas should be cooled in the coldest clean water available (preferably not over 60° F.). The cool peas should be promptly packaged in heavily paraffined paperboard cartons holding not more than one quart, and then placed in a freezing room (0° F. or below) or in a quick-freezing machine.

If not more than 10 or 15 pounds of peas are to be frozen at a time, freezing may be carried out in a cold storage locker, provided it is constructed in such a way as to permit easy circulation of air and is maintained at 0° F. or below. If larger quantities are being prepared at a time, the packages should be frozen in front of an electric fan placed in the freezing room at 0° F. or below.

LIMA BEANS

Frozen lima beans require a different cooking time than the frozen white beans. For this reason, the white beans should be picked out and frozen separately. Otherwise, the procedure described for the preparation and freezing of peas may be used for lima beans.

SPINACH

Properly cooked frozen spinach is as inviting a dish as cooked fresh spinach. Because of the ease of preparation and its high vitamin "C" content, this frozen vegetable should be popular with the housewife. The procedure in preparing, packaging, and freezing this vegetable is as follows:

The freshly cut spinach is carefully inspected, weeds and other foreign material are eliminated, and the thick portion of the stem, any yellow or brown leaves, and seed spurs are eliminated. The trimmed spinach is thoroughly washed, preferably in an abundance of running cold water.

Spinach is one of the most difficult of the common vegetables to clean, so great care must be taken in washing. The washed spinach is scalded in an abundance of rapidly boiling water for two and one-half minutes. In order to ensure uniform blanching, at least two gallons of boiling water should be used for each pound of spinach to be blanched. Moreover, the water should be stirred with a paddle during the blanching operation. The blanched spinach should be thoroughly cooled in cold running water and then carefully drained.

Blanched spinach packs in such a way as to make draining difficult, therefore it should be placed in shallow layers for drainage. The drained spinach should be promptly packaged in heavily paraffined paperboard cartons or other moisture-vapor-proof containers and then

(Concluded on Page 15, Column 1)

*Approved by the Director of the New York State Agricultural Experiment Station for publication as Journal Paper No. 226 (1938).

Five Divisions Of a Locker Storage Plant

These photographs, all of which are taken from the files of Frigidaire commercial refrigeration dealers who have made installations in locker storage systems, depict the various rooms and types of equipment that go to make up a complete locker storage plant.

(1) The chill room, where carcasses are hung to lose their animal heat. The temperature here is generally kept at about 34° F. Here a forced-convection cooling unit is providing the refrigeration.

(2) The plant butcher cutting meat into the desired cuts for the renter, in the processing room. Note equipment, sink, and freezer room door. Not discernible in this picture are the overhead tracks which lead in from the outside, by which renters' carcass meats are conveyed from their trucks to the chill room.

(3) The locker room, where the patrons' food is stored. Lockers shown in this picture are of the up-to-date kind, and in general have replaced the makeshift equipment that was used in the early history of locker storages. In this particular installation plate coils are used, being hung from the ceiling.

(4) The freezer room, which is held at temperatures varying from —10° F. to 10° F. The individually wrapped packages are laid upon shelves (in this case refrigerant-containing cooling coils) where they are frozen solid. This quick-freezing process is the secret of retaining vitamin content, moisture, taste, and tenderness of meats.

(5) Installation of the condensing units. Because space is at a premium in locker plants, this installation was designed to take up a minimum of area. In this particular installation three condensing units were used, making for near-perfect temperature control in the various rooms, but in many jobs only one machine is used.

BRUNNER
Send for the New
REFRIGERATION CATALOG
Seven Models of Compressors
Fifty-eight Models of High-sides from ¼ H. P. to 15 H. P.
BRUNNER MANUFACTURING CO.
UTICA, N. Y.

COAST-TO-COAST

DISTRIBUTION!
Wherever you are, you're always near the source of Artic
(DU PONT METHYL CHLORIDE)
Prompt delivery in standard containers from stocks in principal cities. Write for list of distribution points.
DU PONT
E. I. du Pont de Nemours & Co., Inc.
THE R. & H. CHEMICALS DEPT.
Wilmington, Delaware
ARTIC—the preferred Methyl Chloride for Service Work

PENN AUTOMATIC CONTROLS AND SWITCHES
Protect the reputation of your product
Write for Catalog
PENN ELECTRIC SWITCH CO.
GOSHEN, INDIANA

Anaconda Copper
Refrigeration Tubes
Unusually soft!

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

BUNDY TUBING
Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: ⅛" to ⅝" O.D.
BUNDY TUBING CO., DETROIT

Outsell all others with
Copeland
Commercial Refrigeration
The efficiency, economy and dependability of all Copeland Commercial Units make prospects easy to find, make sales easy to close. Our twenty years of leadership in commercial refrigeration are evident in every unit.
HIGHEST EFFICIENCY!
LOWEST OPERATING COST!
LONGEST TROUBLE-FREE SERVICE!

COPELAND REFRIGERATION CORPORATION, Sidney, Ohio
INVESTIGATE COPELAND'S COMPLETE LINE OF HOUSEHOLD REFRIGERATORS AND WATER COOLERS

Care In Selection Of Fruit & Vegetables For Freezing Must Be Exercised To Obtain Best Results

(Concluded from Page 14, Column 5)

frozen by the methods described for peas.

ASPARAGUS

Freshly harvested asparagus of the proper variety and optimum maturity should be carefully inpected in order to eliminate woody, insect-bitten, and very crooked stalks. The stalks are then roughly graded into two sizes: small ⅜ inch to ⅝ inch in diameter; and medium above ⅝ inch up to and including 1 inch in diameter, all measurements being taken five inches from the tip.

The spears are thoroughly washed in cold water, cut to the proper length to fit the cartons, preferably not longer than six inches, and then placed in a wire basket and scalded in an ample amount of rapidly boiling water. The small stalks are blanched for 3 minutes and the larger ones 4 minutes.

At least one gallon of water should be used for each pound of asparagus. The blanched product is immediately cooled thoroughly in running cold water. When cold it is promptly packaged in heavily paraffined cartons or some other type of moisture vapor-proof container. The packaged product is frozen according to the procedure described for peas.

SWEET CORN

Frozen sweet corn properly prepared from corn of the right variety and maturity is a delicious product. However, great care must be taken in the selection, preparation, and freezing of the corn if a high-class product is obtained.

Ordinarily corn of the proper maturity for cooking as corn on the cob will also be about the right stage for freezing. If the kernels have passed through the milk stage, the frozen product will be starchy and almost unfit for food. After husking and desilking, the ears are carefully inspected, and any over or under-mature corn is eliminated.

For corn on the cob only perfect ears of nearly uniform size should be selected. The irregular and over and under-sized ears may be used for whole grain (cut) corn.

After washing in cold water the corn is scalded. This may be done in boiling water, but blanching in a steam chamber gives a better product provided plenty of steam is available.

Ears measuring 1 inch in diameter (large end) or smaller are blanched for six minutes; those between 1 inch and 2 inches in diameter are given an eight-minute blanch, and those over 2 inches in diameter are blanched 10 minutes.

The blanched corn is immediately cooled to 70° F. or lower with a steam or spray of cold water. The ears are then trimmed with a cleaver to fit the package selected, preferably a heavily waxed paperboard carton, although a simple wrapper of **moisture-proof** cellophane may be used. The packages should be promptly frozen according to the procedure described for peas.

When whole grain corn is packed, the kernels should be cut from the cobs of the cooled blanched corn. In order to remove bits of cob and silk off along with the kernels, the cut corn should be washed in a large amount of slowly running water. The kernels sink, but the small pieces of cob and silk are carried along by the water. The washed kernels are drained and then packaged in heavily waxed paperboard cartons and frozen as described under "Peas."

SNAP BEANS

Snap beans are easy to prepare for freezing, but do not retain their fresh character long unless kept at —10° F. or below. The "Kentucky Wonder" variety is an exception as it may be satisfactorily stored at 0° F. Overmature beans have much fiber in the sidewalls and are unsuited for freezing as they become too tough. After inspection and elimination of overmature beans, the pods are snipped and any strings removed.

The snipped beans are cut into half-inch lengths, and then thoroughly washed in cold water. The cut beans are then scalded for two minutes in an ample amount of rapidly boiling water.

At least one gallon of water should be used for each pound of beans. The blanched beans are immediately cooled to 70° F. or below in cold running water. The cold beans are packaged in heavily waxed paperboard cartons and then frozen without delay according to the procedure described for peas.

Preparation and Freezing Of Fruit

In many ways fruits are more difficult to preserve by freezing than are vegetables. Frozen fruits are ordinarily eaten raw for dessert purposes and so cannot be heated to inactivate the enzymes. Addition of sugar or sugar syrup to fruit slows up enzyme actions and deleterious chemical changes and so is ordinarily used in preparing fruit for freezing.

Since it is necessary for the sugar to penetrate the fruit before it is frozen, quick freezing possesses relatively little advantage in the case of fruits. However, low storage temperatures (0° F. or below) should be maintained if the products are to be kept in storage for longer than six months. In any case 10° F. should be the maximum storage temperature permissible.

Unless the containers in which the fruit is packed hold more than a gallon, the fruit may be frozen simply by placing it in cold storage maintained at 0° F. or below. It may be placed directly in a locker provided the construction is such as to permit easy circulation of air.

STRAWBERRIES

More strawberries are frozen than any other fruit. Most of this fruit is frozen as whole berries but sliced berries have a better flavor and give a more satisfactory product when packaged in small containers.

Whole Berries with Sugar: Fully ripe, but not mushy, berries of the proper varieties are washed in ice water. They are then capped (hulled) by hand as they are removed from the ice water, simultaneously all spoiled, unripe, and mushy berries are eliminated.

The fruit is then mixed with one third of its weight of sugar and slowly stirred with a large spoon or paddle until most of the sugar has dissolved in the juice which is drawn out of the berries. The fruit is then packaged in heavily paraffined paperboard cartons and placed in the cold storage at 0° F. for freezing.

Whole Berries with Syrup: The chilled, washed, and capped berries are placed in heavily paraffined paperboard cartons filling to within ½ inch of the top. Sufficient 65% sugar syrup is then added to each package to cover the berries. The packages are then closed and promptly placed in the cold storage for freezing at 0° F.

The sugar syrup is made by dissolved 65 parts of granulated sugar in 35 parts of hot water steadily stirring the syrup over a fire until solution is complete. This syrup should be made up in advance and cooled below 70° F. before using.

Sliced Berries and Sugar: The chilled, washed, and capped berries are sliced in pieces one quarter of an inch thick. If the berries are tart, 1 lb. of sugar is added for each 4 lbs. of sliced fruit.

One pound of sugar to 5 lbs. of berries is the proper proportion to use if the fruit is sweet. The sugar is thoroughly mixed with the sliced berries, then they are packaged in heavily paraffined paperboard cartons. The packaged product should be promptly placed in the cold storage at 0° F. for freezing.

Chopped Berries with Sugar: Berries cut up in a chopping bowl, then mixed with sugar, packaged, and frozen have as good a flavor and color as sliced frozen berries, although they are not as pleasing in appearance.

RASPBERRIES

Red Raspberries with Sugar: Frozen raspberries are an excellent product and will become more popular when the public becomes more familiar with their excellence. The procedure is simple, involving only the following steps:

(1) Washing in ice water;

(2) Inspection and elimination of moldy berries, cores, and other foreign matter by hand at the time the washed fruit is removed from the ice water;

(3) Mixing the washed berries with sugar in the proportion of one part of sugar to four parts (by weight) of fruit;

(4) Packaging in heavily paraffined paperboard cartons;

(5) Freezing in a cold storage at 0° F. or below.

Red Raspberries in Syrup: Red raspberries may also be frozen in heavy syrup according to the procedure described for **Whole Strawberries with Syrup.** This type of product is slightly superior in appearance to those packed with sugar, but the flavor is diluted and not as desirable.

Purple Raspberries: Purple varieties may be prepared and frozen by exactly the same procedure as that described for red raspberries. The product is excellent.

Black Raspberries: Black raspberries yield a product of pleasing flavor but one in which the seeds are so noticeable as to be very distasteful. The procedure is the same as for red raspberries.

SOUR CHERRIES

Sour cherries are washed in ice water as soon as they are brought in from the orchards. The chilled washed cherries are inspected and stemmed as they are removed from the ice water, and then are immediately pitted either by machine or hand. Without being allowed to warm up, the pitted cherries are mixed with granulated sugar in the proportion of three parts of cherries to one part of sugar.

The sugared cherries are placed in heavily waxed paperboard cartons and then covered with juice which has been drawn out of the fruit by the action of the sugar. The packages are then immediately placed in a cold storage at 0° F. for freezing.

CURRANTS

Currants are handled in exactly the same manner as cherries, except that they are stemmed instead of pitted.

CRANBERRIES

The cranberry is the easiest of the fruits to freeze and yields an almost perfect product which may be kept for long periods of time without noticeable deterioration. The berries are simply washed in cold water, inspected, stemmed, carefully drained, and then packaged in heavily waxed cartons, frozen and stored at 0° F.

BLUEBERRIES

Blueberries may be prepared and frozen by the same procedure as described for cranberries, but a somewhat better product may be obtained if this fruit is packed with sugar in the following way:

The freshly picked fruit is washed in ice water, then carefully inspected and stemmed as it is removed from the wash water. Next the berries are mixed with granulated sugar in the proportion of one part of sugar to four parts of berries, packaged in heavily waxed paperboard cartons and frozen and stored at 0° F.

PEACHES

Peaches are one of the most difficult of all of the common fruits to freeze satisfactorily. Only a few varieties are suitable for freezing, so the choice of varieties must be considered carefully. Green or hard fruit gives a bitter product of poor texture; mushy fruit is equally undesirable.

In preparing peaches for freezing, uniformly soft ripe yellow peaches are peeled and dropped into a container filled with cold water in which they must be kept immersed until they are pitted and sliced. The slicing should be done directly into the heavily paraffined paperboard cartons in which they are to be frozen.

As soon as a container has been filled to within three quarters of an inch of the top, the slices should be covered with a 70% sugar syrup. Then the package is immediately closed and promptly (within two or three hours) placed in a cold storage at 0° F. Peaches oxidize easily and so should not be stored at higher temperatures.

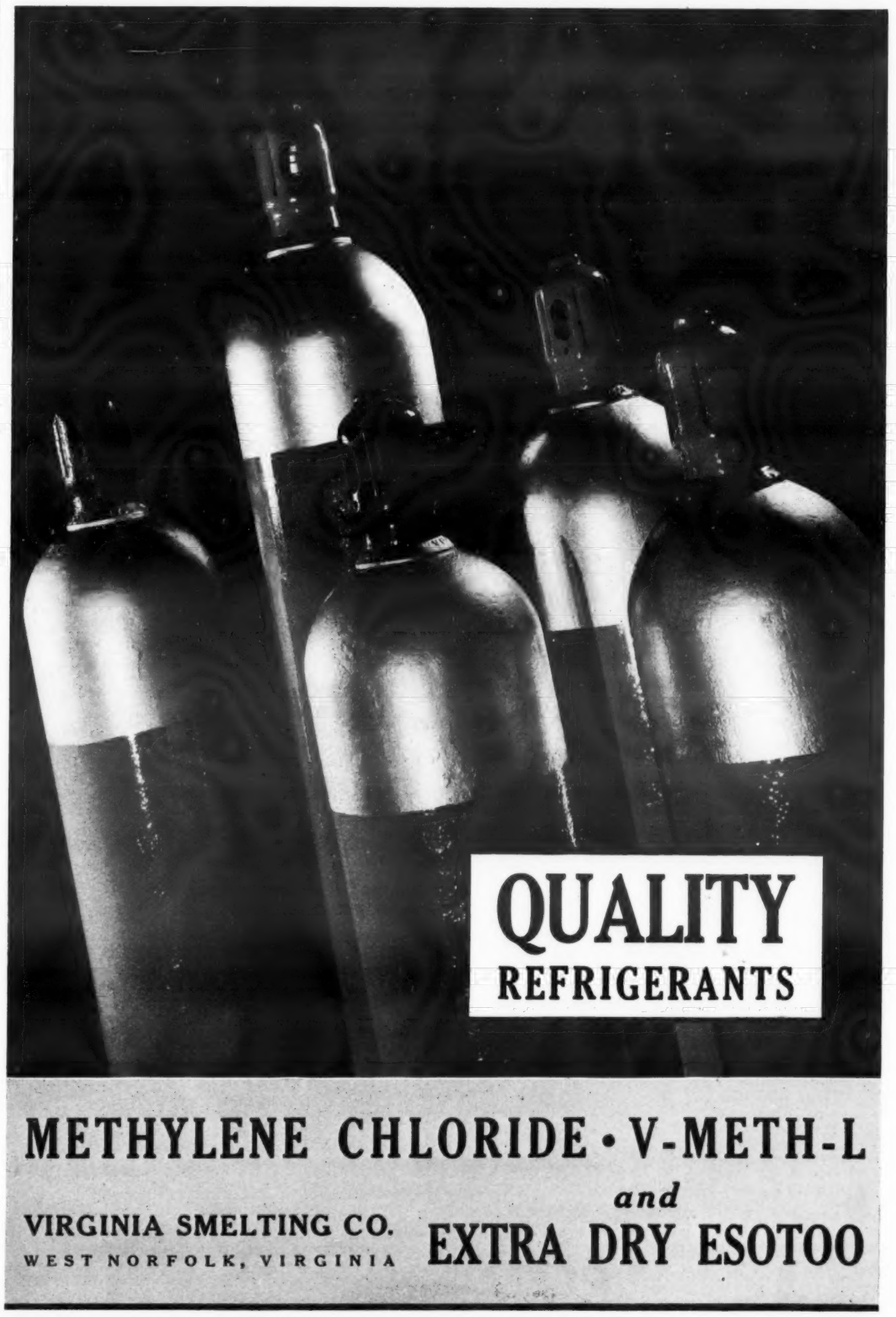
Seventy per cent sugar syrup is made by dissolving seven parts by weight of sugar in three parts by weight of boiling water, stirring constantly over a fire until solution is complete.

Architect Plans 10 Lockers

BARRINGTON, Ill.—Norman A. Maxon, architect is taking figures on 10 proposed locker storage plants to be located in Iowa, Illinois, Indiana, and Michigan.

Mr. Maxon is reported to be interested in figures on refrigeration, insulation, locker equipment, butcher supplies, and other equipment for the plants.

All of the jobs are being held in abeyance at present, pending the arrangement of financing for the project, it is reported.



Installation Methods and Use Of a 'Hot Gas' Defrosting Hookup For A Refrigerated Locker Plant

This is the second and concluding instalment of an article by Alfred Richard, a refrigerating engineer who was active in the design and installation of a recently completed refrigerated locker storage plant in Cuba City, Wis.

In the first instalment, published in the June 1 issue of the News, Mr. Richard described the layout of the plant and functions of various rooms, and then gave load calculations and equipment selection conditions and considerations for each cold room.

In this week's instalment Mr. Richard tells how the refrigerant piping was installed, how "hot gas" defrosting is employed, and the type of temperature controls used.

BY ALFRED RICHARD

WITH temperatures maintained below 32° F. in the freezer and locker rooms of a refrigerated locker storage plant, manual defrosting of the evaporators must be employed. This type of defrosting can be accomplished in one of several ways, for example:

(1) By using electric heating elements above the cooling units, whereby heat is generated, melting ice from the finned surfaces, with the compressor shut down. This method tends to raise the temperature in the room, and there is some hazard due to the high voltages involved.

(2) By the "hot gas" method of defrosting. This method is used in the Cuba City plant.

The forced-convection units lend themselves very well to the hot gas method of defrosting, since the cooling surface is contained in compact units, which can be defrosted one at a time, and all the condensation water easily collected in a pan or receptacle which is fastened underneath the unit cooler during the defrosting period.

With such a system frequent defrostings are easy to accomplish, thus keeping the coils clean, lowering the operating cost, making possible short defrosting periods (15 to 25 minutes), and preventing the room from warming up more than 1° F.

In the Cuba City plant the cooling equipment consists of two Carrier 15K5 cold diffusers in the freezer room, and two like units on the locker room, all four forced-draft units operating from a 1-7F6-75 water-cooled methyl chloride condensing unit. There is an advantage in hot gas defrosting in having all the cooling units on one condensing unit, since when working with a low density refrigerant at —5° F., it is possible to draw from several cooling units and defrost the one remaining unit with considerable speed.

Some dealers, in using the hot gas defrosting method, have employed a shell-and-tube liquid receiver and condenser as an evaporator in the defrosting cycle, with the cooling unit to be defrosted in the role of the liquid receiver.

However, such a cycle is subject to serious difficulties. The operator may fail to block open the water valve on the condenser far enough, or he may fail to check on the operation properly, with the result that the receiver may freeze and break, and a general plant breakdown will follow.

CONDENSER BY-PASSED

In the Cuba City plant the shell-and-tube condenser is by-passed out of the system in the defrosting operations. The entire defrosting cycle is done through the cooling units, so that there is no danger of water freezing in any part of the system.

Fig. 3 diagrams the piping connections required to accomplish defrosting by the hot gas method in the Cuba City plant.

In making the installation, hard copper tubing was used throughout, with wrought-type fittings of soldered-type joints, and supports in the form of copper type straps.

To prevent any difficulty that might be occasioned by the action of meat acids, a 95-5 solder was used on all joints, and all tubing and fittings were sanded and lacquered. Each joint was also covered with mastic cement (Zeroflex). This cement never dries hard, so it was again painted to prevent meat acids from getting to the joint.

CEMENT IS USED

This same cement is also used in flare tubing work to prevent condensation between the flare nut and the tubing, which might freeze and cause a crack in the tubing.

Valves used were the heavy-duty type of packed design, with wing caps for tight sealing.

Because of the difficulty of finding proper support, the running of the refrigerant lines presented a problem. As pictured in Fig. 4, all tubing lines were neatly clamped to strips of wood which were anchored to the wall by hand-made lagscrews 6 to 10 inches long, according to the insulation thickness in the respective rooms.

These screws went through the insulation and into sheathing which lined the rooms before the insulation was installed. Purpose of lining the rooms with sheathing before the insulation was placed was to obtain a smooth and solid surface against which the insulation could be placed.

Rock cork insulation is used in the Cuba City plant. In the chill room, aging room, and vestibule the insulation is 4 inches thick throughout; in the freezer it is 8 inches throughout, and in the locker 6 inches throughout. Floors have the proper thickness of concrete over the insulation to support weights, especially the locker room. Walls and ceilings are plastered inside with mastic cement and painted aluminum for sanitation and brightness.

Each condensing unit is equipped with a sight glass in the liquid line so that the operator can check for clues as to possible shortages of refrigerant and give a report to the service man.

TWO-SPEED COMPRESSOR

Condensing unit for the locker and freezer rooms is of the two-speed type (1800-1200 r.p.m.) and is installed with a two-speed relay operated by a two-speed pressure switch. When only one cooling room cuts in on a light load, or near the end of a cycle, the motor drops to the slow speed, consumes less current, and prevents short cycling. The two-speed relay is shown in Fig. 5.

A 7½-hp. compressor was selected. The compressor operates at a very low speed under present load conditions even when the motor is running at 1,800 r.p.m.

The condensing unit operates at 340 r.p.m. on high speed, and has a rated capacity of 35,000 B.t.u. per hour at —5° F. suction temperature, with 90° F. condensing temperature, using 70° F. water. The locker and freezer room combined load is 32,500 B.t.u.

The condensing unit used on the chill room is a 1½-hp. water-cooled model, which operates at 315 r.p.m. Rated capacity is 14,500 B.t.u. per hour at 20° F. suction temperature with 90° F. condensing temperature. The load for the three rooms which it handles (chill, aging, and vestibule) is 14,400 B.t.u. per hour.

CARRIED ON CORKBOARD

The refrigerating machines are carried on corkboard to reduce vibration and eliminate noise. The foundation was built by placing 2-inch cork on the floor, and around all edges, upon which separate concrete slabs were poured, to which the units were bolted. (See Fig. 6).

Machines were placed in the front room where prospects and users of locker systems can see them, and the operator can keep close check on them.

Condensing medium is city water on the 1½-hp. unit, but for the 7½-hp. unit well water is used.

The well was drilled under the front sidewalk and a deep-well pump placed in a pit under the walk. This gives the large machine condensing water often as low as 55° F., thereby increasing its rated capacity a great deal.

The regular automatic pressure water valve is employed to control water flow through the unit. As an extra precaution against the possibility of the well pump failure, which might cut out the locker room compressor because of a high pressure

(Concluded on Page 17, Column 1)

Arrangement Of Valves In Defrosting Cycle

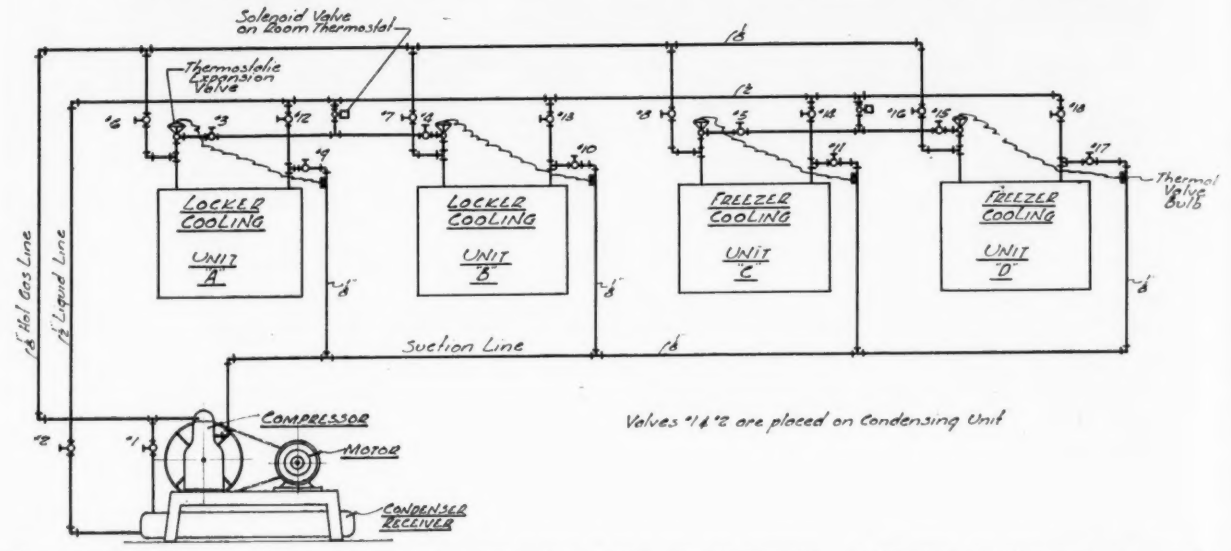


Fig. 3—Drawing showing valve arrangement for "hot gas" method of defrosting. During normal operation valves Nos. 1, 2, 3, 4, 5, 9, 10, 11, 15, and 17 are in open position, while valves Nos. 6, 12, 7, 13, 8, 14, 16, and 18 are closed.

To defrost unit "A." (1) stop compressor; (2) close valves 1, 2, 3, 9; (3) open valves 6 and 12; (4) operate compressor until frost is removed from unit "A." In this case unit "A" acts as a condenser and units "B," "C," and "D" as evaporators, while the regular water-cooled condenser is by-passed out of the system.

To defrost units "B," "C," and "D," proceed in a similar manner. When defrosting of the unit is completed, reverse the valve operations.

During the defrosting period the blower should be inoperative, so that heat will not be circulated into the room. The drain pan is hung into place with receptacle attached, so that the condensation will be easily collected.

How Piping Was Run

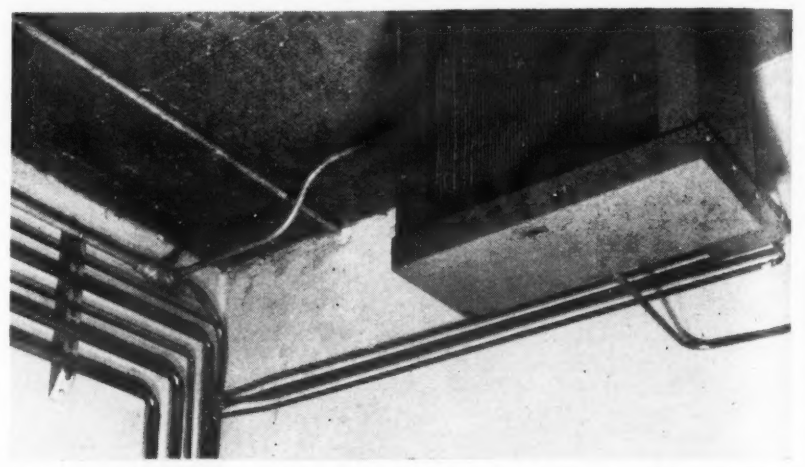


Fig. 4—Installation of the cooling unit in the aging room, showing how piping was run, and method of support to the walls.

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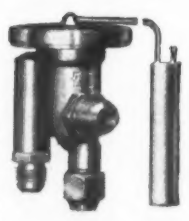

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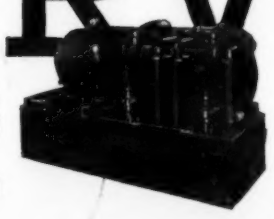

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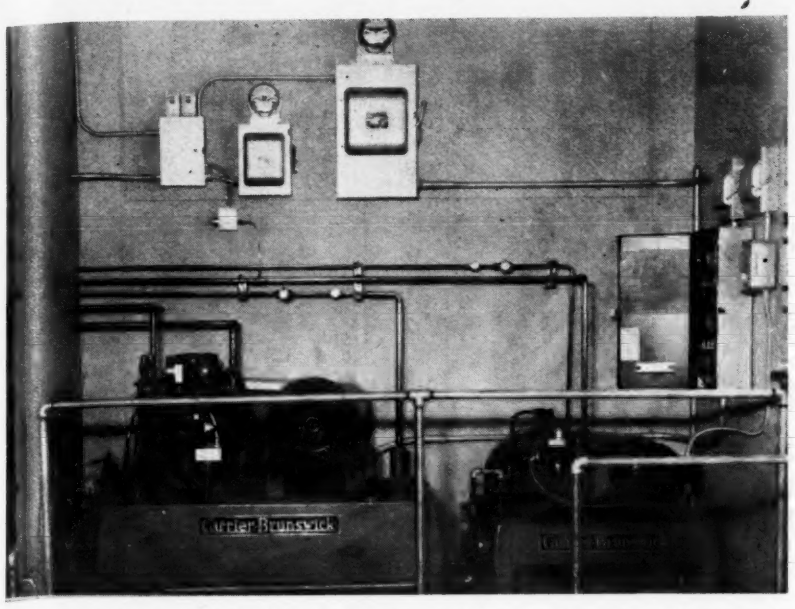

Fig. 5—Installation of the condensing units in the Cuba City plant. Box housing the two-speed relay is shown on the right wall (with door open). Note guard rail and the neat way in which the piping is run. This equipment is located where the patrons can see it.

Care Needed In Selecting Controls and Running Wiring In Locker Plants

(*Concluded from Page 16, Column 5*)

condition, another automatic pressure-operated water valve was put in the city water supply line to the same unit, which valve is set a trifle higher than the normal operating pressure and automatically throws the city water into the condenser and prevents machine shutdown. We felt this to be a necessity because there is no operator at the plant at night, which means that a pump failure would not be found until morning.

STORAGE TANK USED

The well pump is connected to a water storage tank of 100-gallon capacity, making possible use of a smaller pump than if it were connected direct to the condensing unit. This pump is automatically controlled from a pressure switch in the storage tank line.

Proper temperature control is accomplished in the plant by various control apparatus. The two unit coolers in the locker room each have a thermostatic expansion valve. The refrigerant supply to these units is controlled by an electric solenoid valve, ahead of the unit connections, operated by a Minneapolis-Honeywell type T-414A thermostat with a remote bulb.

THERMOSTAT HOOKUP

The room thermostat is so wired that it can operate the fan motors on the unit coolers automatically with the operation of the solenoid valves, or it can control the solenoid valves only, allowing the fan motors to be controlled manually and operated constantly, if desired. Each cooling unit motor has its thermal protective hand switch.

Controls for the freezer room are the same as for the chill room. The condensing unit serving both rooms is operated by a two-speed pressure switch.

Unit coolers in the chill and aging rooms are fed by thermostatic expansion valves. A thermostat operates the compressor motor.

BLOWERS CONTROLLED

On the suction line of the cooling unit for the aging room is a pressure switch which controls the fan motors of the aging and chill room coolers. It starts up the fan on a pressure drop after the compressor begins to work, and continues to run after the compressor stops—thereby defrosting the fins—until the pressure builds back up to the predetermined setting. This economizes current consumption and gives longer equipment life.

Care must be used in electrical wiring work for locker plants. Because of extreme differences in temperature between rooms, conduit lines must be sealed at all ends and around all outlet boxes to prevent air currents through piping, which causes condensation in the pipe and eventually short circuits. Conduit sealing was used throughout on the Cuba City job, and all conduit was of the acid-resisting type, later lacquered.

Lights in locker and freezer rooms are controlled from switch and pilot light in vestibule. All lights in the chill, aging, and vestibule rooms were on another switch with the pilot light. All of the above lights then are controlled by a master switch outside of storage areas with a pilot so the operator can keep them out when he knows no one is in the rooms.

SELL OTHER EQUIPMENT

Refrigeration equipment dealers who may handle or have a connection with a supplier of scales, blocks, grinders, knives, and other such equipment will find it easy to sell such equipment in the general locker plant contract.

Those firms having plumbing departments have added volume to locker plant jobs by installing toilet facilities for the convenience of the operator and customers, and a sink in the processing room for washing the foodstuffs and tools.

Refrigeration dealers should make connections with a locker manufacturer, as the sale of lockers in many cases is tied up with the equipment contract, and can represent a nice profit for the dealer.

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G-E Analyzes Motors For Farm Use In Booklet

SCHENECTADY, N. Y.—Farm savings and profits resulting from the use of electric motors on the farm are listed and analyzed in a new 12-page General Electric publication, GED-664.

Every important use for motors on the farm is analyzed in the "summarized data guide chart" at the back of the booklet, which sets forth the type, rating, and power consumption of the motor recommended for performing each of about 70 farm jobs.

The booklet contains several illustrations of motors installed on farm jobs. Selection of the proper motor is simplified by a tabulation of farm jobs and motor types. Motors covered are those most commonly used, including split-phase, capacitor, and repulsion-induction types, as well as the G-E portable farm motor, which will operate many farm machines and can be moved easily from one machine to another.

Lee Adams Heads New G-E Standards Department

SCHENECTADY, N. Y.—Lee F. Adams has been appointed manager of the newly formed standards department of General Electric Co., with the responsibility of coordinating all activities pertaining to the development and application of standards throughout the organization.

Mr. Adams also will act as assistant to Vice President E. O. Shreve, and his department will work with various local, national, and international associations and agencies interested in standards.

First becoming associated with the G-E organization in 1906, Mr. Adams left to obtain his degree in electrical engineering at Pennsylvania State college, from which he had been graduated with a bachelor of science degree.

He returned to G-E in the fall of 1909 as a member of the induction motor engineering department. In 1912 he was transferred to the industrial engineering department, where he became active in standards and codes.

Mr. Adams was transferred to the commercial general department in 1929, remaining there until his recent appointment.

He has been a member of the American Institute of Electrical Engineers, the U. S. national committee of the International Electrotechnical Committee, and other trade groups. As company representative in the National Electrical Manufacturers Association, Mr Adams has been chairman of the codes and standards committee and represented Nema on the standards council of the American Standards Association.

Processing Room In Cuba City Plant

Processing room in the Cuba City plant. From left to right the men are Bob Terry, plant supervisor; Lynn Ferrin, installation and service engineer; and Emmet Byrne, plant butcher and operator. Of special interest in this picture are the two-foot-square charging door to the freezer room (at the left); and the modern wall treatment of two-tone Celotex blocks.

'Seat' For the Compressors

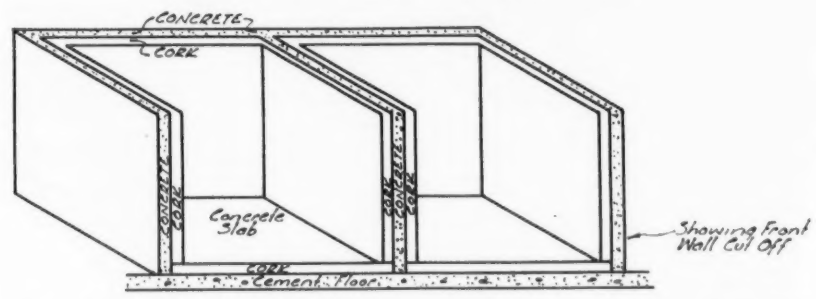
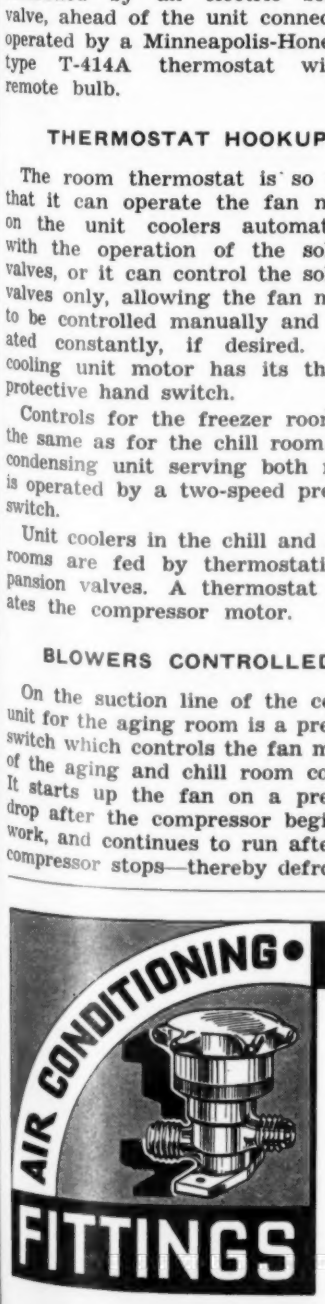


Fig. 6—Drawing showing how foundation for condensing units was made with a cork setting.

Ceiling-Type Unit and Thermostat

Fig. 7—Photograph of cooling unit in chill room, showing piping, and location of the room thermostat.



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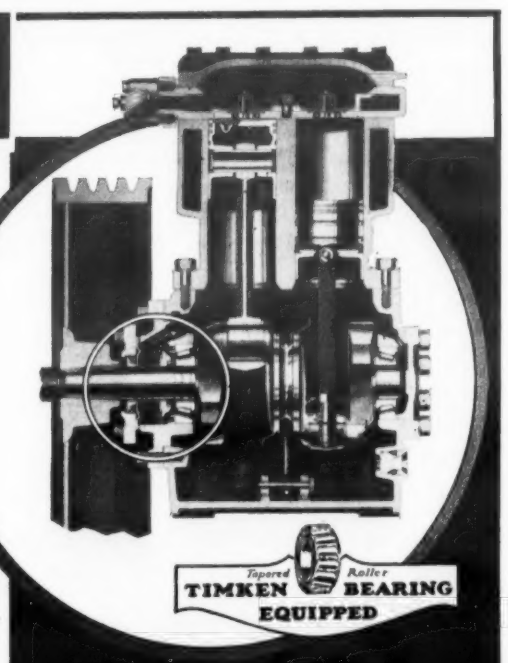

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How Oil Separators Function To Improve Efficiency Of Refrigerating Systems

By F. B. Riley, President, Riley Engineering Corp.

MODERN low-pressure refrigerants, with their diversified chemical structures, present many problems and complications in the refrigerating cycle. When mixed with various kinds of lubricating oils with widely different bases, degree of refinement, the amount of wax contained in them, the viscosity, color, and other characteristics may have a decidedly detrimental effect when circulating through the refrigeration system.

What are some of the advantages of keeping oil out of the low-pressure side of the installation?

(1) It is obvious that refrigerants and lubricants which are miscible in all proportions, will not permit the refrigerant to evaporate in the low side of the system at its true boiling point.

(2) The mixture of oil and refrigerant is seldom constant in percentage of oil and refrigerant. This fact tends to make it difficult to maintain a consistent expansion valve setting due to the oil taking up a part of the expansion valve orifice, which has been regulated for the passage of pure refrigerant.

(3) After the mixture passes the metering valve and the walls of the evaporator begin to chill down, it is beyond dispute that the oil will deposit on the evaporator walls, due to its boiling point being several hundred degrees lower than the boiling point of the refrigerant.

DEPOSITS ON WALLS

(4) The thickness of this oil coating depends, of course, on the amount of oil passing over to the low side, the temperature of the evaporator, and the velocity of the suction gas in the evaporator, but, in any event, there will be a deposit on the walls which, in time, will materially affect the rapidity of heat transfer through the evaporator walls in addition to a probable pressure drop through the coils due to the oil deposits on either the walls or in traps in the coils.

(5) The loss of efficiency due to the above reasons will quite frequently reduce the overall efficiency as much as 15 to 20%.

Every engineer knows that, with flooded low sides, Freon and methyl chloride present an almost impossible situation in getting even a fair percentage of oil back from the low side. The result is, of course, an oil logged condition and, possibly, a burned out compressor.

NEEDED FOR LOCKER JOBS

In low temperature applications, such as are required in locker storage systems, an oil separator can be said to be an absolute necessity. Oil which passes into the low side of a low-temperature system using a low-pressure refrigerant will often quickly form a thick film which clings to surfaces, clogging orifices, reducing heat transfer, and cutting compressor efficiency.

In comparable operation on ice cream hardening cabinets, installation of an oil separator has enabled a compressor to pull down the temperature 8° lower than when operating without an oil separator, under comparable conditions.

Many thousands of dollars have been spent in devising means for returning oil from evaporators when the obvious method should be to keep it from getting there in the first place. Why expose a patient to an insidious disease and then spend thousands of dollars trying to cure him?

It is true that some unit manufacturers try to catch the oil at the compressor intake and direct it back to the crankcase. This can be done with fair success with some types of installations—but such methods do not catch the oil which remains in the evaporator and that is where the trouble occurs. Why try to catch the oil on the return trip when it can be so easily returned to the crankcase before it has a chance to cause trouble?

LOW GAS VELOCITY

Principal problem of securing even a fair return of oil from low sides occurs in low-temperature installations, multiple installations, and in evaporators where gas velocity is comparatively low and, of course, in the flooded types of evaporators.

The purpose of lubricants in the system is solely to lubricate the moving parts of the compressor. This naturally includes a film of oil on the cylinder walls and piston, otherwise excessive wear will occur with resulting loss of compression.

Oil passing the cylinder heads will be atomized due to heat of compression and will condense in colder parts of the system, if not prevented from reaching them. Oil in this nebulous, or atomized, condition will separate readily in an efficiently designed separator, whereas in the liquid state it is impossible to effect a separation of oil and refrigerant in any practical separating means located beyond the condenser and before the mixture reaches the metering valves.

SEPARATOR'S JOB

The job of the oil separator is, therefore, concerned only with separating the oil out of the nebulous mixture before it reaches the condenser and returning it immediately and automatically to the crankcase.

With the earlier machines using ammonia as a refrigerant, an oil separator was always a part of the complete installation. They were rather crude affairs consisting usually of a piece of pipe larger in diameter than the discharge line from the compressor. This piece of pipe was set vertically near the condensing unit. The incoming atomized oil and gas would impinge on a steel plate placed directly before the inlet fitting at the top.

The oil would drop down through the pipe, but the refrigerant would swirl around the baffle plate and then through an outlet in the side of the pipe, near the top, to the condenser.

Naturally, with the comparatively large surface of the shell exposed, there would always be some condensation of refrigerant in the oil, and, when drawing off the oil from the bottom of the shell through a hand operating valve into a bucket, there would be considerable bubbling of the oily mass as the refrigerant would boil out of the mass and escape in the air, or into water which would absorb it.

WITH METHYL FIRST

With the advent of the low-pressure refrigerants, sulphur dioxide, methyl chloride, and Freon, the early applications were primarily for the household cabinet. In one type the dry gas, or direct-expansion system, was favored and here very little trouble was experienced.

The other type consisted of the flooded system with either a low-side float or a high-side float, but, with both of these latter systems, much effort and money has been expended in devising ways to bring the lubricants back from the flooded evaporators, no attempt being made to keep the oil out of the evaporators where it could serve no useful purpose and did cause considerable trouble at times.

EARLY ATTEMPTS

Among the early commercial applications, the ice cream cabinet held first place and they were all of the flooded type, using sulphur dioxide, and a great amount of money was spent in the laboratories in determining the correct amount of oil to be kept constantly in the evaporator and calibrating the float mechanism to keep this amount constant. Multiple systems came into use shortly after and difficulties were experienced with oil logged evaporators.

Next in point of time were the general commercial type machines using sulphur, methyl, and, later, Freon. No attempt was made to keep oil in its place in the compressor and again time and money was spent in trying to get the oil back to the crankcase.

While automatic oil separators were not a brand new idea, the methyl chloride exponents were among the first to believe that oil should be separated out of the gas before reaching the condenser and several separators were designed and put into use with some degree of success, but were later abandoned as the oil still passed through them and into the evaporator. The fault was not with the idea but with the mechanisms which were crude in design and lacking in the basic principles of complete oil and refrigerant separation.

Without discussing intimate details of automatic oil separator constructions, which may vary considerably with different manufacturers, the principal requisite is that the separator have sufficient surface, or surfaces, for the incoming nebulous gas to impinge on as oil will cling to an oily surface.

Usually the more surfaces for the gas to impinge on the better the separation; second, there must be a time element to consider; that is to say, a separator may be too small in relation to the compressor capacity to permit time for the oil to drop out. The gas may rush through to the condenser so rapidly that only a part of the oil is removed.

SOME PROBLEMS

Third, the separator may be so large in proportion to the compressor that it acts as a condenser and the refrigerant will condense and be automatically returned to the crankcase with the oil, causing a drop in back pressure and a consequent loss of efficiency.

Location of the separator may also be important in that, if located in the air stream of the condenser fan, it may be chilled to such an extent that condensation of refrigerant may occur, or, if located in a cold place such as in a dairy barn, condensation will again occur before the separator has become warmed up from the heat of compression.

NEED INSULATION

The most advanced type of separator now provides against the effects of drafts and cold starting by providing a shielded construction which is intended to prevent the condensation of refrigerants in the separator shell. The fact must not be overlooked, however, that, with water-cooled compressor heads, there may be some condensation of refrigerants in the head due to the effect of low temperature and comparatively high pressure. This is not a frequent condition but may occur and the blame be attached to the oil separator itself.

Now for the purposes of the automatic oil separator:

Everyone concedes that oil serves its only useful purpose in the compressor itself and in any other part of the system it may be a considerable detriment to efficient operation. The prime purpose, then, of the separator is to separate out all of the oil which leaves the compressor

(Concluded on Page 18, Column 1)

How the Oil Separator Functions

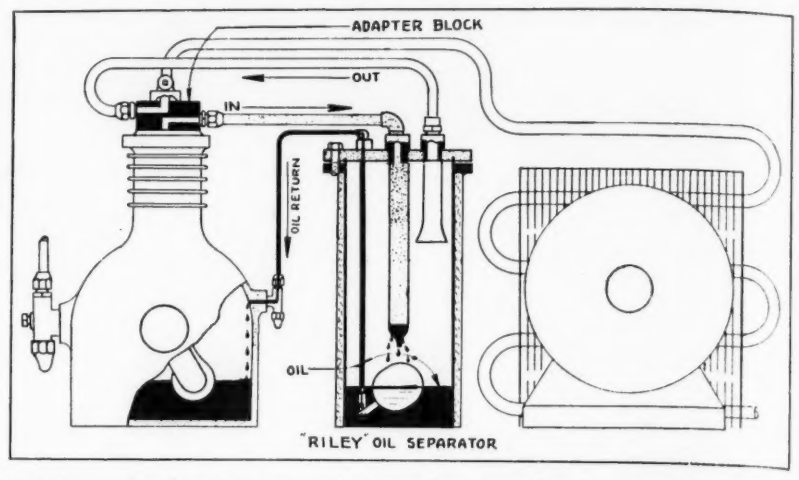
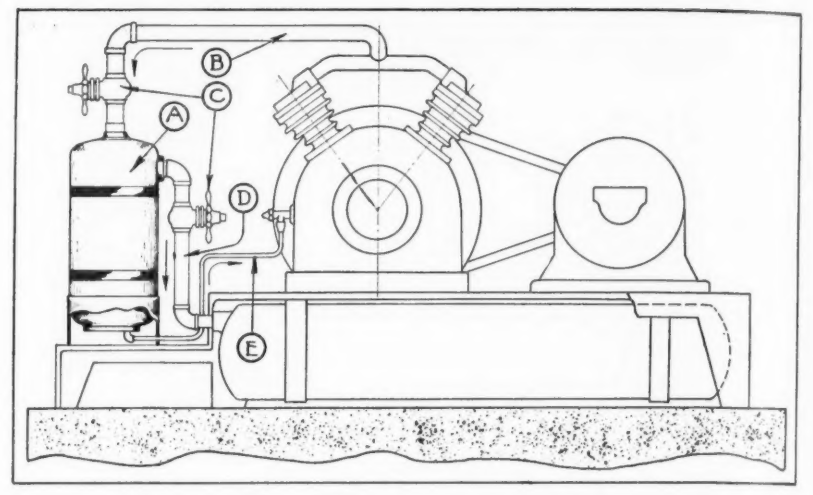
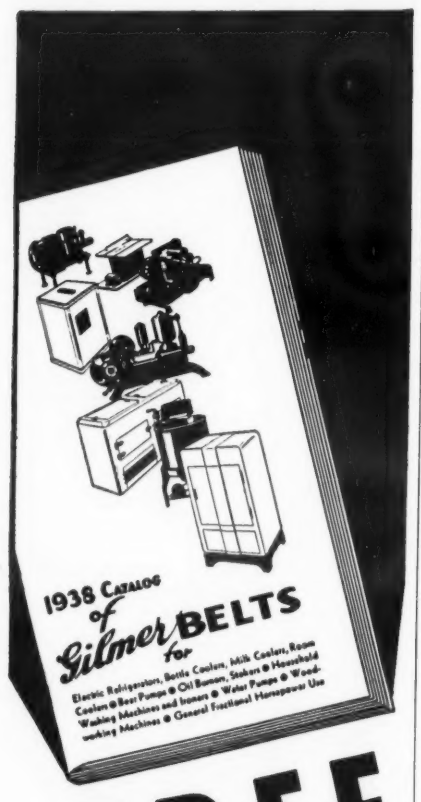


Diagram showing how an oil separator operates to separate the oil from the refrigerant before it reaches the evaporator.

Valve Setup For an Oil Separator



(A) Oil separator; (B) oil-laden gas "in"; (C) shut-off valves; (D) oil-free gas "out"; and (E) oil return.


1938 Catalog of Gilmer BELTS for
Electric Refrigerators, Bottle Coolers, Milk Coolers, Room Coolers • Beer Pumps • Oil Burners, Stokers • Household Washing Machines and Ironers • Water Pumps • Wood-working Machines • General Fractional Horsepower Use

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NOTHING like it now or ever in the whole industry. 144 packed pages listing refrigerator belts for 4450 models, 135 makes by lengths, cross-sections, manufacturers' part numbers (even shows year of manufacture where this helps you find proper belt faster). Handy pocket size. *Usefully indexed,* sensibly arranged.

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Simplicity REFRIGERATOR Truck

New

Designed by a WAREHOUSE MAN

to meet the urgent need in that field for safety and easy handling of electric refrigerators, parlor heaters and similar cabinets, too large to carry. The Simplicity is balanced and mounted on solid rubber wheels. Handles 56". Felt-covered boards in front, two 12-foot straps.

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Weight 38 lbs.

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For air liners, railroad cars, product cooling, and any other refrigeration application, there is a GR-Lipman product that meets the requirements exactly.

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Write for information about latest GR-Lipman developments.

GENERAL REFRIGERATION CORPORATION
Dept. F-3, Beloit, Wisconsin, U.S.A.

Use Of Oil Separator Has 7 Main Results

(Concluded from Page 18, Column 5)

and to automatically return it to the compressor crankcase.

Second, by separating out the oil, the refrigerant is now free to evaporate at its true boiling point and that means that the unit may be operated at highest back pressures with a real gain in efficiency.

Third, expansion valves have caused service troubles, due principally to accumulations of dirt, scale, core sand, carbon, gummy oil, acid corrosion, etc., lodging in the expansion valve screen, or passing through the screen and erode, or corrode, the valve mechanism.

This accumulation of foreign matter is usually carried through the system by getting a free ride in the oil which circulates in the refrigerating cycle. This accumulation can be kept out of the system by being trapped in the oil separator and there kept out of harm's way.

Unless there is dirt in the condenser and liquid receiver, it is practically impossible for this foreign matter, no matter what it may be, to pass out of the separator where there is ample room to store it out of harm's way.

Tests of the advanced type of oil separators indicate that, of oil passing into the separator, a percentage as low as .002 of 1% passes out into the system with the refrigerant gas.

The direct results of installing an efficient automatic oil separator in the system are:

(1) A correct level of oil in the compressor crankcase at all times.

(2) Refrigerants remain at their true boiling points at all times.

(3) Rapidity of heat transfers is increased very greatly with consequent increase in efficiency.

(4) Oil logged evaporators in either the direct expansion or flooded types are eliminated.

(5) Much lower temperatures are easily attained in low-temperature systems without increase of operating time.

(6) Scale, dirt, core sand, oxides, carbon, etc., are caught in the separator and removed from circulation.

(7) Expansion valve operation is greatly improved by removal of the foreign matter before reaching the metering valves.

Industrial Advertisers Plan Sept. Conclave

CLEVELAND—The National Industrial Advertisers Association will hold its 16th annual conference here Sept. 21 to 23, according to an announcement by Stanley Knisely, advertising manager of Republic Steel Corp., who, as vice president of the association, heads its committee for conference program and arrangements.

Few program plans will be made for this conference until association members have been canvassed to determine what subjects they wish to discuss, Mr. Knisely said.

F. O. Wyse, advertising manager of Bucyrus-Erie Co., South Milwaukee, and president of the association, has stated that the association experienced more rapid growth and expansion in 1937 than in any other year since its formation in 1922.

Three new chapters were added, at Toledo, Toronto, and Indianapolis, and a dozen different research and development projects were carried on in addition to the separate activities and monthly meetings of local chapters now being held regularly in 15 cities.

Typical of some of the national committee activities was the recent development of publishers forms for three classifications of business papers, developed to provide more detailed and comparable data for space buyers, and including editorial or qualitative information as well as additional industrial coverage and circulation data. Another recent report covered the influence of local dealers on the buying of space in trade papers.

Servel Equips Orange Crush

SOUTH BEND, Ind. — Servel-powered water cooling equipment has been purchased by the Orange Crush Bottling Co. for its plant here. The installation includes a model WAO-500 Servel machine unit, sold by McGowan Sales, Inc., Servel commercial distributor here.

New 'Package' Steam System For Homes Shown By Arco

NEW YORK CITY—Four new products for heating the small residence have been announced by the American Radiator and Standard Sanitary Corp. here.

The new units, which will be on display for the first time at the master plumbers' convention in Cleveland June 6 to 9, will consist of a package steam system, a new oil burner, a new Arco thermos system, which eliminates the use of conventional radiators, and an Arco attic cooling fan.

Arthur H. Herske, American Radiator president, stated that the "package system," to be known as Arco, Jr., will be for use in low-cost homes, up to five rooms in size. All equipment necessary for a complete installation, including boiler, pipes, radiation, and controls, will be offered for sale as a complete unit.

The new system is designed to eliminate the complications which exist when the contractor buys equipment from many sources, and is said to result in a substantial reduction in cost. The component parts, all of which are manufactured by the company, will be boxed together. Charts will be furnished the contractor to assist him in estimating the cost of any job quickly and accurately.

Operation of the Arco thermos system, which eliminates the usual radiators, is said to be similar to an automobile heater with an air-driven fan behind it. This heater is installed in a small space in the wall.

Arcoflame, the new oil burner, will be sold as a conversion burner, and also as part of a boiler-burner unit. It will be priced competitively with other oil burners now on the market.

The new Arco attic fan is intended for homes of moderate means. Cost of the fan is estimated at approximately $125 plus installation, with operating cost estimated at 3 cents per night The fan is started or stopped with an automatic control device known as the Auto-Timer.

Course In Refrigeration And Air Conditioning Offered At Wayne

DETROIT—Four courses in refrigeration, heating and ventilating, air conditioning, and air-conditioning applications are being offered by the mechanical engineering department of Wayne University for the school year 1938-1939.

All of the courses require studies in heat engines or thermodynamics as prerequisites.

The three-hour course in refrigeration is described as "a study of refrigerants, refrigerating equipment, and the application of refrigeration."

Heating and ventilation is a two-hour course, covering direct and indirect heating systems, fans, and duct systems, ventilation requirements, load calculations, and general heating and ventilating equipment.

The course in air conditioning is described as "the principles, equipment, and application of controlling the cleanliness, temperature, humidity, and movement of air for industrial processes, factories, office buildings, and residences."

Air-conditioning applications is a continuation of the study of air conditioning, "with special emphasis on special application of air-conditioning equipment, including air washers, finned coil units, central cooling systems, air distribution, and controls."

New Catalog Describes Ventilating Fans

ST. LOUIS — Emerson Electric Mfg. Co. has issued a new catalog of its products and two new folders illustrating and describing the Emerson-Electric exhaust and ventilating fans.

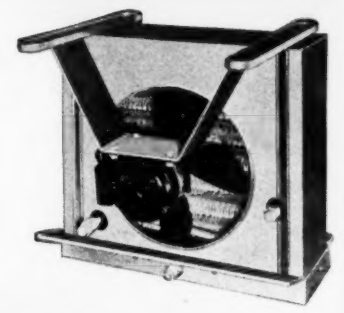
Pocket size, the new 24-page catalog features the company's five-year factory-to-user guarantee, and describes with illustrations and specifications the full line of desk fans, air circulators, ceiling fans, and exhaust and ventilating fans.

NEW

A FORCED DRAFT UNIT COOLER THAT MAINTAINS HIGH HUMIDITY!

The Peerless Unit Cooler

WITH HIGH DISPERSION COOLING SURFACE



There's no longer any need to tolerate food dehydration in forced draft unit cooler refrigeration because the New Peerless Unit Cooler does maintain high relative humidity. It's the only unit cooler that will do this because it's the only unit cooler built with High Dispersion cooling surface, the sensational new development.

Use the Peerless Unit Cooler exclusively and build a reputation for installing the best!

PEERLESS of AMERICA, Inc.

ESTABLISHED IN 1912 AS THE PEERLESS ICE MACHINE CO.

New York Factory, 43-20 34th Street, Long Island City — Main Factory—General Offices, 515 West 35th Street, Chicago — Pacific Coast Factory, 3000 S. Main Street, Los Angeles

PEERLESS JOBBERS IN ALL PRINCIPAL CITIES

BUY PEERLESS FOR PERFORMANCE

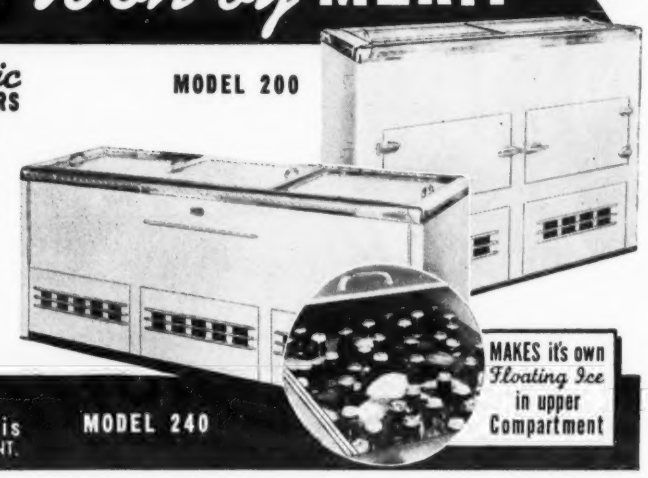
LEADERSHIP Won by MERIT

PELCO Electric BEVERAGE & BEVERAGE-FOOD COOLERS

The world's largest builder of "floating ice" beverage and beverage-food coolers! And, no wonder! PELCO chills from room temperature to desired degree in about 30 minutes—makes its own floating ice automatically as needed. It's an EXTRA value cooler—lower refrigerator compartment makes PELCO doubly useful... extra quality . . . extra performance . . . extra beauty . . . extra years of service. Super-powered. CASH IN on PELCO—GET ALL the FACTS.

Address Desk A-68

MODEL 200



MAKES it's own Floating Ice in upper Compartment

MODEL 240

Refrigeration Division

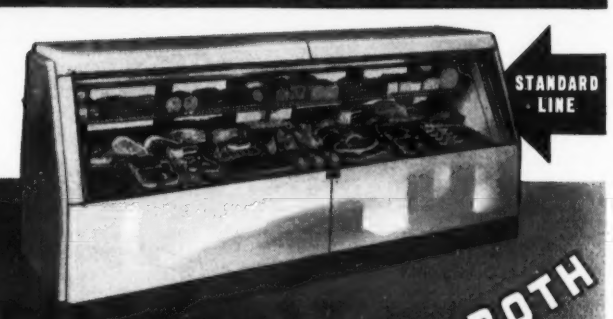
PORTABLE ELEVATOR MFG. CO., Bloomington, Illinois

In Canada UNIVERSAL COOLER CO. of CANADA, LTD. BRANTFORD, ONT.

THE INDUSTRYS DOMINANT LINE

If Koch equipment is not already being sold in your territory, write TODAY for information about the Koch franchise. There is still room in the Koch organization for additional distributors.

WELDED STEEL



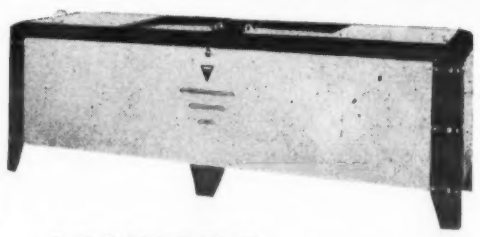
STANDARD LINE

The Koch line is COMPLETE. It includes all types and sizes of commercial refrigerators and display cases, both standard construction and welded steel.

KOCH REFRIGERATORS NORTH KANSAS CITY MISSOURI

ONLY KOCH CAN GIVE YOU BOTH

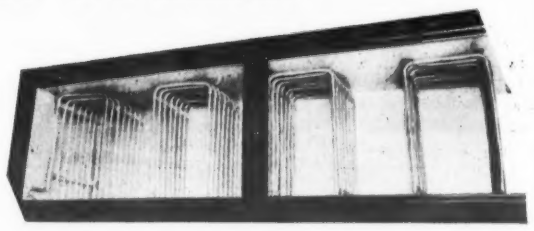
THE IDEAL SPEED COOLER



Compartments

Capacity

Fast Cooling



COMPARE against anything on the market for compartments, capacity and fast cooling.

Sturdy construction, beautifully streamlined. Stainless steel lids and tracks. Fits any bar. Built in three sizes: 6 ft., 18 cases; 7 ft., 21 cases; and 8 ft., 24 cases capacity. Three cases of 12 ounce bottles to each compartment.

CASH IN on the "hottest" money maker in the industry. The beverage cooler sensation of the year. Some territories still available.

IDEAL BEER COOLER CO. 1500 No. Broadway, St. Louis, Mo.

Manufacturers of all kinds of Liquid Coolers

"Ranco? YES SIR!"

RANCO COMMERCIAL CONTROLS are recognized as leaders in the field — and the Ranco line includes controls needed for locker storage plants.

See your Ranco Jobber — when you need controls for Beverage Coolers, Water Coolers, Ice Cream Cabinets, Display Cases and similar applications.

Ranco Inc., Columbus, Ohio, U.S.A.

RANCO COMMERCIAL CONTROLS

Control Recommendations For Locker Systems

OMAHA, Neb. — The kinds of refrigerant metering devices and refrigeration system control apparatus used on an ammonia-type system for a refrigerated locker storage plant were described in a paper prepared by Roger Sprague of the Baker Ice Machine Co. for presentation before a national meeting of the American Society of Refrigerating Engineers last year. Said Mr. Sprague:

"While I have employed both float control and thermal expansion valves the latter are more commonly used, and with good results. Each room is independently and automatically controlled, using magnetic stop valves in liquid and suction lines, with back pressure regulating valves on chill and locker rooms. The compressor motor is operated through a pressurestat."

Syracuse Service Society Hears Talk On Coils

SYRACUSE, N. Y.—Members of the Central New York Chapter No. 1 of Refrigeration Service Engineers' Society held a special open meeting in the Starrett Syracuse building here last month, at which E. Bockmeyer of Peerless of America, Inc., was chief speaker, reports Maurice H. Schwartzberg, secretary.

Mr. Bockmeyer's talk dealt with Peerless' new "high dispersion" heat transfer surface, now being used as standard equipment in all the company's unit coolers.

Qualities and construction of the tubing were outlined by the speaker, who also answered questions brought up by members of the chapter in a round-table discussion.

Mr. Brandt, representing Melchior, Armstrong, Dessau Co., was another speaker at the special meeting.

Locker Operator Teaches Naperville, Ill. Citizens To Have & Enjoy Frozen Foods

NAPERVILLE, Ill.—Encouraging the year-around use of a locker storage plant by educating customers in the convenience and economy of quick-freezing fruits and vegetables is proving a worthwhile source of extra profits for the Community Food Storage Locker Plant here, reports J. B. Divine, manager.

In addition to giving residents of rural communities an opportunity to enjoy frozen foods, heretofore available only in urban areas, quick-freezing of home-grown fruits and vegetables through properly equipped locker plants actually is less expensive than ordinary home canning, Mr. Divine contends. And the products have the added advantage of being fresh instead of canned.

Local Freezing Of Fruits and Vegetables

How a refrigerated locker storage plant, properly equipped to package and freeze fruits and vegetables, is educating a community to enjoy all kinds of foods the year-around, is told in this interview with the plant manager.

For further information on the preparation of fruits and vegetables for freezing and storage in locker plants, see pages 14 and 15.

"Due to the widespread increase in locker storage plants, residents of rural communities have had a taste of fresh foods such as they never have had before," says Mr. Divine. "To a large extent, however, these plants have confined their work to meat products, principally because they have had neither the equipment nor the knowledge required to handle fruits and vegetables for their patrons.

"In fact, a recent bulletin from the University of Minnesota (No. 64) advises the housewife against trying to preserve fruits and vegetables by the frozen storage method.

" 'From all precautions that must be taken,' the bulletin says, 'any housewife will see at once that it would be easier and less dangerous to sterilize food by canning it instead of using frozen-pack methods. The average household simply is not equipped to prepare and care for frozen-pack products properly. Neither does the average creamery, storage house, or meat distributor have suitable equipment.' "

Mr. Divine agrees that the average locker plant does not have equipment to properly handle frozen food processing. But, says he:

"When the locker plant is properly equipped to blanch, chill, package, and freeze fruits and vegetables, it can preserve locally home-grown fruits and vegetables for its patrons, and the patrons can enjoy all winter these home-grown products, fresh and of the same quality as is now being distributed under well-known brand names in city markets."

The Community Food Storage Locker Plant's equipment for this purpose was installed by W. E. Guest & Co., Chicago, who specialize in this type of equipment.

"We are now busy packing strawberries, raspberries, asparagus, string beans, and peas in large quantities for our patrons," Mr. Divine says.

"All patrons have to do is to bring in the garden-fresh products to our plant after picking them. With our equipment, we do all the rest, even to the packaging. The fresh-frozen cartons of produce are then put in the patron's locker, to be taken out by him whenever he wants them.

"The saving to the patron is best illustrated by the large amount of asparagus and green peas now being brought into our plant here. The cost of raising these products is about 5 cents a pound . . . that's the price paid to farmers when they bring them to canneries around here.

"We do all the processing work on the vegetables, and pack them into cartons, for 6 cents a pound. The lockers hold 250 lbs. each, and if this food is held for six months, there is an additional charge to the patron of 2 cents a pound for storage, bringing the total cost to him to 13 cents a pound.

"Compare this cost with the 30 to 40 cents a pound paid by city users for the same quality of merchandise, bought under a well-known name in the frozen-foods field."

In the case of fruits, patrons may either let the locker plant operator do the whole job, including packaging, covering with syrup, and storing, at 6 cents per pound, or purchase cartons from the plant for 2 cents each and pack the products in their own homes. In this latter case, the charge for sharp-freezing and storing is 3 cents per pound, a total cost of 5 cents.

Minimum quantity which the plant will process for any one person under either of the above rates is 10 lbs.

The plant also operates a sharp-freezing service for patrons on poultry. Customers can bring in their fowls, picked and drawn, either whole or cut up, ready for cooking. The plant will sharp-freeze, glaze, wrap in water-tight paper, and put in the customer's locker at a cost of 2 cents per pound.

To enable customers to get the fullest possible use from their lockers, the plant provides each of them with a folder, entitled "Using Your Locker."

The folder suggests a month-to-month butchering and frozen-food packing schedule, for the guidance of patrons. Also suggested are the procedure to follow in arranging for slaughtering and processing of animals, and the care and preparation of fruits and vegetables for quick-freezing.

"It is very important that fruits and vegetables be frozen as soon as possible after picking," the bulletin says. "The best way is to pick them early in the morning, prepare them for freezing, and then take them to the plant immediately. Be sure they reach the plant by noon of the day they are picked."

On "Preparing Vegetables," the booklet says:

"Pick vegetables when they are barely ripe. If too young, they will not have their full flavor, and if too mature, they will have a woody texture. In general, prepare them just as you would for canning. Shell and wash peas and lima beans; wash, break, and string green beans; cut rhubarb and asparagus in lengths for serving.

"In the case of sweet corn, husk it and remove all silk. Take it to the plant—if you wish the kernels cut off before freezing, the plant will do this after blanching.

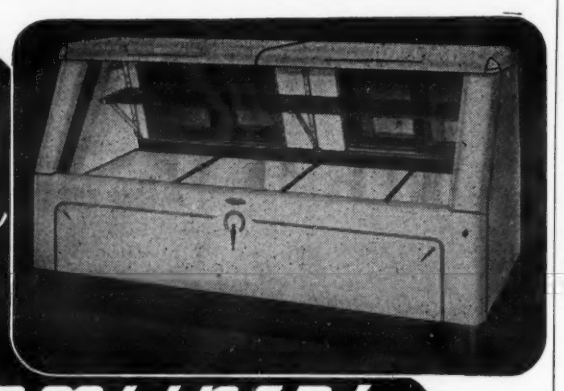
"Fruits can be prepared for freezing in the home. Pick, sort, and wash them, selecting only firm, ripe fruit. Stem strawberries, and slice if large; stem and pit cherries; pare and slice peaches, holding them under cold water while doing so; stem and wash raspberries, loganberries, blackberries, etc.

"We suggest that you pack fruits in ordinary mason jars. In a quart jar place 2¼ cups of fruit, covering with 1½ cups of 50% syrup. Put rubbers and tops on jars and take them at once to the plant. For pint jars, use 1⅛ cups of fruit to ¾ cup of 50% syrup."

"Frozen foods should be cooked while still frozen, or within a few hours after thawing. When taking from plant, wrap in several thicknesses of paper. At home, place in cool cellar or refrigerator.

"Frozen vegetables may be dropped in boiling water. Water will then cease boiling, but will come back to a boil in a few minutes. Count cooking time from this point, and cook for three or four minutes less than fresh vegetables. Fruits may be cooked, or served either thawed or while still frozen. If meats are cooked while frozen, add about 10 minutes per pound to normal cooking time."

NEW Percival STREAMLINER!



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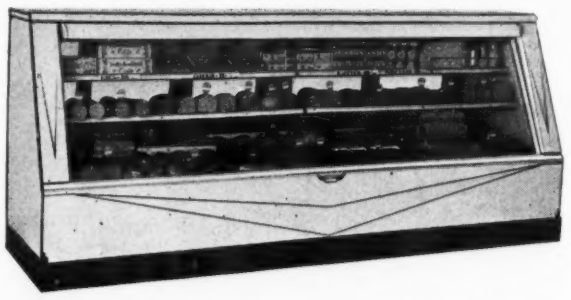
Write for details of Profit-making franchise. Complete PERCIVAL line meets *every* requirement of the modern food store.

Modern styling . . . Beautiful design . . . Outstanding construction . . . Economical operation! TOMORROW'S case, presented TODAY! Get the jump on other distributors by selling this modern marvel of electrical refrigeration. Its NEW style and NEW features give you exclusive selling advantages! NEW PERCIVAL FINANCE PLAN HELPS YOU SELL.

C. L. PERCIVAL COMPANY
DES MOINES . . . . . IOWA
52 YEARS OF SERVICE 1886-1938

LIFETIME GUARANTEED VISION!



ANOTHER EXCLUSIVE FOGEL FEATURE

Famous Fogel Lifetime Vision—known all over the world—means permanent assurance of perfect display facilities through three layers of ABSOLUTELY CLEAR WHITE GLASS hermetically sealed in rubber—certain protection against fogging or sweating between glasses. Removable display glass unit permits rapid replacement in event of breakage at a fraction of ordinary costs. No tearing out front of case—no rebuilding. Every case in the Fogel "one quality" line has this feature, a source of lasting satisfaction to dealer and consumer.

Inquire today about our full line of refrigerated food storage and display equipment. Interesting distributor proposition to qualified firms.

FOGEL REFRIGERATOR COMPANY 16th & Vine Sts., Phila., Pa. SINCE 1899

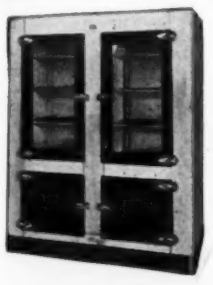
TYLER WELDED STEEL REFRIGERATORS

A COMPLETE NEW LINE FOR 1938

Fastest selling line ever offered to the trade. Completely covers the field. Pace-setting values in Top Display and Double Duty Cases—6, 8, 10 and 12 foot lengths . . . Two shelf cases . . . Delicatessen cases . . . Reach-In Boxes . . . Walk-In Coolers. All streamlined with striking modern beauty and engineered with latest improvements.

With this new Tyler line of commercial refrigerators you can step out ahead of all competition. Write today for free literature and attractive dealer proposition.

TYLER FIXTURE CORP. NEW YORK OFFICE, 501 W. 29th St. Dept. R, NILES, MICH. CHICAGO OFFICE, 1053 W. Ogden Ave.



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1000—⅓ and ½ H.P. FRIGIDAIRE "Model K" CONDENSING UNITS $12.50 COMPLETE LESS MOTOR

All removed from running installations—All operating but not overhauled. CRATING or CASING $2.50 additional

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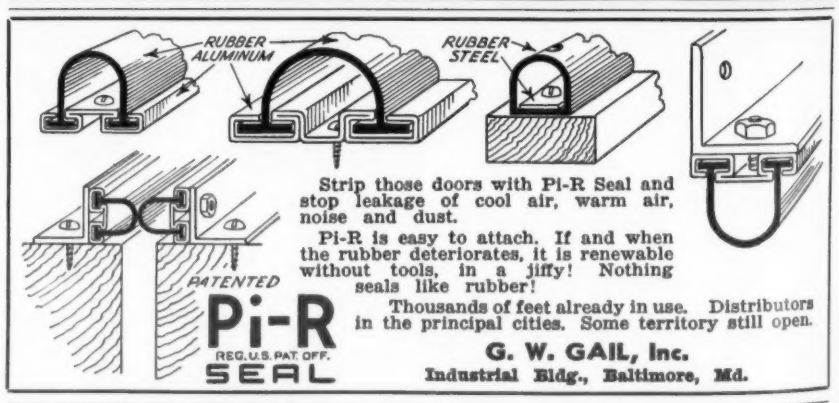

Strip those doors with Pi-R Seal and stop leakage of cool air, warm air, noise and dust.

Pi-R is easy to attach. If and when the rubber deteriorates, it is renewable without tools, in a jiffy! Nothing seals like rubber!

Thousands of feet already in use. Distributors in the principal cities. Some territory still open.

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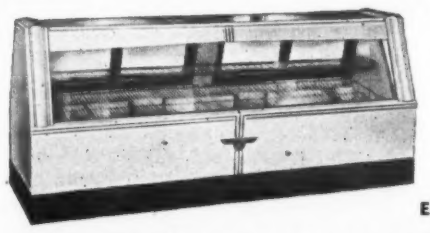

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Refrigeration • Heating
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PROMPT SHIPMENT FROM LARGE STOCKS FOR THE RUSH SEASON

Five Handy Books on Air Conditioning Engineering and Installation

During the past year a series of five manuals dealing with the subject of air conditioning has been published by Business News Publishing Co. These manuals, which give you complete information on air-conditioning engineering and installation problems, are available to you at a cost of $1.00 each.

Air Conditioning Made Easy

Four of these manuals are part of the Air Conditioning Made Easy series which appeared in AIR CONDITIONING & REFRIGERATION NEWS. A brief description of the contents of each book is given below the illustrations.

Air Conditioning Made Easy was written by F. O. Jordan, who has had long practical experience in the engineering departments of leading air-conditioning manufacturers. He is a graduate of Purdue University, a registered consulting engineer, and at the present time is Consultation Manager of the Refrigeration & Air Conditioning Institute of Chicago.

A proper understanding of air conditioning calls for some knowledge of several different fields of science (including mathematics, physics, chemistry, thermodynamics, etc.). In the series of manuals entitled Air Conditioning Made Easy, all of this essential information has been collected and arranged in logical order. The whole subject has been greatly simplified and made practical for any intelligent person who wants to learn about air conditioning. Considering the small price of this authentic information, you cannot afford to do without these books.

How to Select and Install Air Conditioning Systems

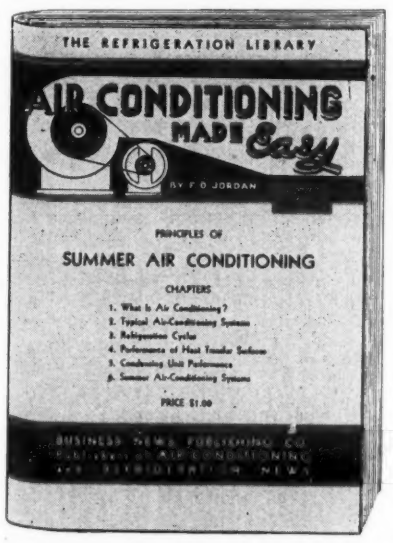
How to Select and Install Air Conditioning Systems contains a series of 25 case histories written by T. H. Mabley, Chief Engineer of Mechanical Heat & Cold, Inc., Detroit. Each installation was engineered by Mr. Mabley in his regular work.

The "cases" start with the simpler installations such as a single office and continue through to the more complicated installations such as process jobs and the air conditioning of auditoriums and department stores.

Simple methods are given for calculating heat gain and loss for each job, determining design conditions, selecting equipment, and locating and installing equipment. Both direct and indirect systems are used in these typical installations and the advantages and disadvantages of each method are given.

The procedure followed on these particular 25 jobs may be studied by the contractor, dealer, or engineer and valuable information gained, which may save hours of time, and possibly prevent expensive mistakes.

These books are a part of the series of manuals on refrigeration and air conditioning which have been published by Business News Publishing Co. These manuals are carried in stock by leading refrigeration supply jobbers or they can be ordered directly from Business News Publishing Co. by using order blank below.



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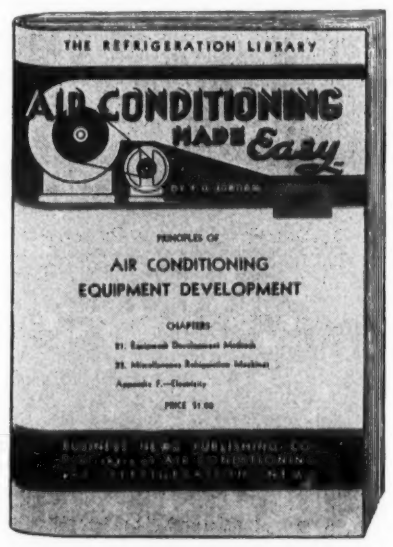

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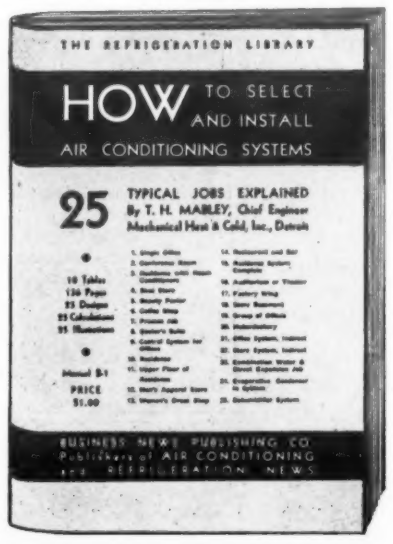
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Engineering

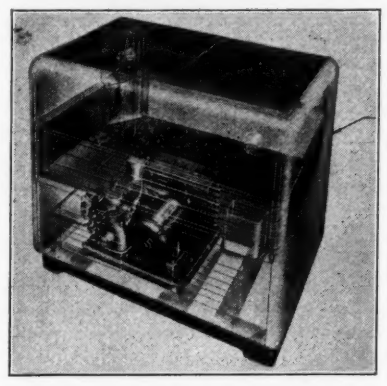
Lathrop Named Celotex Vice President In Charge Of Technical Division

CHICAGO—Elbert C. Lathrop has been elected a vice president of Celotex Corp., in which capacity he will be in charge of technical matters for the corporation and its subsidiaries. He will maintain headquarters here.

Mr. Lathrop was with Celotex as director of research and development from 1925 to 1932, when he resigned to become technical director of Crown Zellerbach Corp., paper manufacturer. His headquarters then were at Camas, Wash.

Before joining Celotex in 1925, he taught chemistry at DePau, Purdue, and Pratt Institute; served as biochemist in the U. S. Dept. of Agriculture; managed the chemical standards division of E. I. du Pont de Nemours & Co., Inc.; and practiced as a consulting chemist, being vice president of S. P. Sadler & Son, Philadelphia.

For Commercial Use



Universal Cooler's new extruded aluminum coil in a self-contained beverage cooler. Arrow points to the coil.

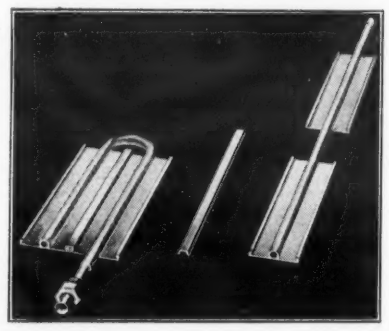
* * *

New Aluminum Coil Made By Uni. Cooler

DETROIT—A new type cooling coil, said to be adaptable to all household refrigerators and to a variety of commercial refrigeration applications, has been announced by Universal Cooler Corp.

The new coil is made of aluminum formed into continuous tubing, with two integral parallel flanges. Extruded sections are clamped together with a locking device of the same metal, in such a way that a continuous flat surface is presented on the inside of the cooling compartment.

Designed for high-speed production, the new Universal Cooler coil was developed by company engineers



This photograph shows the continuous tubing in its original form with clamping device separate and then the formed tubing, showing method of assembly.

in cooperation with the engineering department of Bohn Aluminum & Brass Corp.

The unique design increases the amount of effective cooling surface, and the high conductivity of the metal provides greater cooling capacity and faster freezing, it is claimed.

Among commercial refrigeration applications for which the coil already has been adapted are bottled beverage coolers, plate coils for meat displays, self-contained water coolers, sweet water bath draft beer coolers, dry storage bottled beverage coolers, and milk coolers.

Blower Fan Construction Has Unusual Feature

CHICAGO—A new type blower fan, with the hub cast to form the driven unit of a flexible coupling has been introduced by Advance Aluminum Castings Corp., 2742 W. 36th Place, under the trade name "Castalu." The fan is designed for service on oil burners, stokers, air-conditioning equipment, and other devices requiring a source of moving air.

By having the flexible coupling driven unit as an integral part of the fan, motors having standard shafts can be used, and approximately one-third of the cost of the flexible coupling is saved, it is claimed. When additional distance between motor and fan is required, instead of using a non-standard motor shaft or extra length hubs, a low cost, oil-proof synthetic rubber flexible coupling center unit of the right length is installed.

Design of the blower is said to fulfill requirements for oil burners by being noiseless; for stokers by giving an air stream of ample pressure; and for air-conditioning equipment by producing ample volume without noise or "wind tunnel" effect.

The fan is cast in one piece of non-corrosive and light weight aluminum.

Cobalt-Nickel Alloy Use Explained At Meeting

SAVANNAH, Ga.—Recent advances in the commercial use of cobalt-nickel alloys as a substitute for nickel as an undercoating for chromium were described by Dr. Louis Weisberg, consulting chemist and president of Louis Weisberg, Inc., New York City, in a paper read at the recent meeting of the Electrochemical Society here.

In his paper, titled "The Commercial Electrodeposition of Cobalt-Nickel Alloys," Dr. Weisberg said that electro-plating of these alloys has attained a significant commercial position within a little more than two years as a result of the discovery that the presence of sodium formate and formaldehyde in the sulphate bath renders it easy to obtain bright deposits of the alloy without polishing or buffing after plating.

This is thought to be significant to manufacturers of all types of metal products, including electric refrigerators and other appliances, radios, musical instruments, and other metal-using products.

Composition of the solution used and the operating conditions necessary for producing such deposits were described in the paper. Deposits are normally very ductile, and can be bent or twisted without lifting or peeling, it is said.

In addition to their chief application in place of nickel as an undercoating for chromium, cobalt-nickel alloys also are being used as undercoatings for silver and gold. The plate has found use in some cases where no overplate is applied. Here, it is said, the blue-white color of the alloy, as compared with nickel, is generally considered an advantage. Another interesting use that has developed is for plating stereotypes.

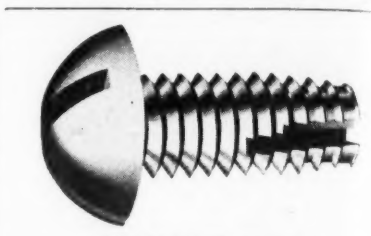
New Screw Developed For Use With Plastics

CHICAGO—Development of a new screw intended expressly for use with plastic materials has been announced by Shakeproof Lock Washer Co.

This screw, known as the Shakeproof "Hi-Hook" thread-cutting screw, has a specially designed, double-width slot with an acute cutting edge which is said to cut a clean, sharp thread in all types of plastic compositions, both molded and laminated.

Construction of the screw is said to reduce the high driving torque normally encountered and to enable fast, easy driving with a minimum of the breakage common to molded plastics.

Because the screw cuts a standard thread, it may be replaced, if necessary, by a conventional machine screw of the same size.



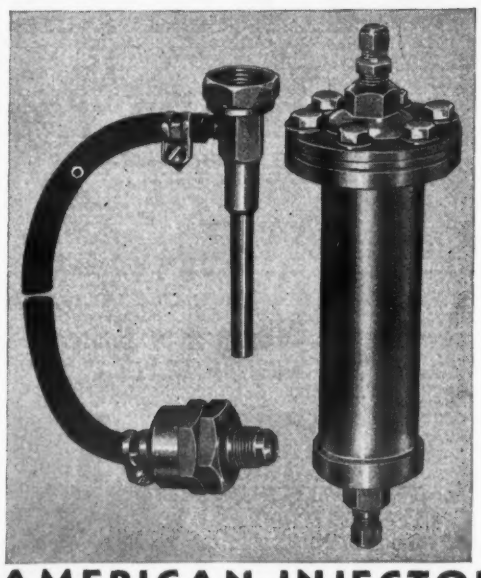
Shakeproof screw.

Company officials claim that use of this screw eliminates the need for a separate tapping operation or threaded inserts, the only requirement being that the screw be inserted in a molded or drilled hole of the proper size and be driven home with a hand or power driver.

A free demonstration kit of these screws, including an assortment of different sizes and complete instructions for testing, may be had by writing the company.

THE BUYER'S GUIDE

The new AMINCO
VACUUMATOR



Fills a distinct need!

Servicemen, manufacturers, and jobbers alike join in welcoming the VACUUMATOR as a distinct contribution to the art of servicing automatic refrigeration installations.

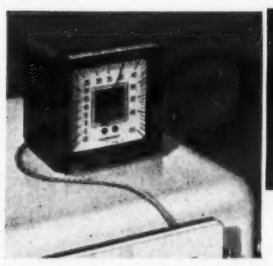
It cleans, dehydrates and evacuates evaporators, condensers and the entire system on the job.

It tests expansion valves, either thermostatic or automatic, in the field.

As a quick and efficient means of cleaning dirty systems and removing moisture the VACUUMATOR is the ideal outfit and should be in every serviceman's kit.

Complete outfit $10.00, at your jobbers.

AMERICAN INJECTOR COMPANY
1481-1491 Fourteenth Avenue DETROIT, MICHIGAN



FOUND
THE WAY TO KNOW WHAT'S GOING ON BEHIND THAT CLOSED DOOR

As every service man knows, the only true story of refrigeration temperature is told under actual working conditions with the refrigerator door CLOSED. That's why the old-fashioned pocket thermometer has had to make room for this Marsh "Serviceman" with its easily read dial and generous length of capillary tubing for reaching the real point of testing. You don't guess when you use the—

MARSH "Serviceman"
REFRIGERATION SERVICE THERMOMETER

The illustration tells the story of this ruggedly built instrument. It is guaranteed accurate within one degree. It has the Marsh "RECALIBRATOR" which makes it possible to reset it as easily as you would adjust a postage scale. Volume production permits selling this finely built instrument (in ranges of —10° to 65° or —10° to 100°F) at a dealers net price of..... $5.00
(Minus 20° temperature range at slight added cost.) f.o.b. Factory

Use it for—
All household or commercial service jobs.
Checking switch action.
Answering complaints of too high or too low temperature.
Checking brine tanks and vessels.
In selling refrigerators; surveying cooling jobs and similar work.

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2067 Southport Avenue, Chicago, Ill.

MARSH Refrigeration Instruments
GAUGES—THERMOMETERS—RECORDERS—MERCURY SWITCHES

For better tube cutting—
IMPERIAL TUBE CUTTERS

WITH Imperial tube cutters you can make a quick, clean, right angle cut, leaving no burrs or chips to clog the line and without flattening the tube.

The No. 174-F has a number of special features as shown in the adjoining illustration. It will handle tubing from 3/16" to 3/4" O.D. In addition Imperial has other types of cutters including the No. 204-F which will handle tubing up to 2 1/4" O.D.

THE IMPERIAL BRASS MFG. CO.
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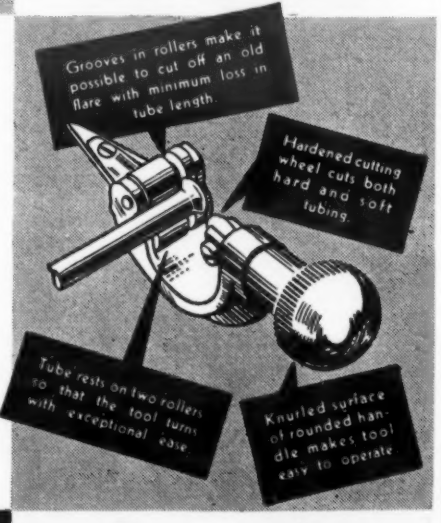
ORDER FROM YOUR JOBBER


Grooves in rollers make it possible to cut off an old flare with minimum loss in tube length.
Hardened cutting wheel cuts both hard and soft tubing.
Tube rests on two rollers so that the tool turns with exceptional ease.
Knurled surface of rounded handle makes tool easy to operate

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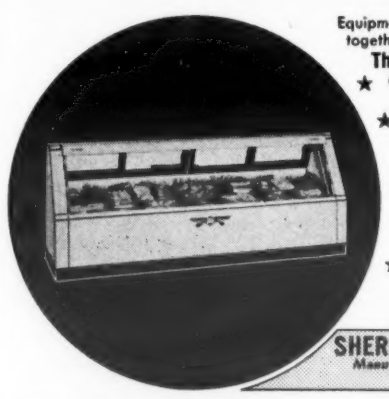
CUTTING • FLARING • BENDING • COILING • PINCH-OFF • SWEDGING



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—When You Spot This Common Trouble

When your customer's cooler doesn't work right—when dead air spots and freezing zones impair foods and the humidity is too high or too low—it's time for you to show him Action-Air System—a patented system of correct air circulation in coolers.

Sells itself on a demonstration. Pays for itself out of savings. Makes good profit for you—adds enthusiastic new customers—leads to repeat business. Used in wide variety of applications since 1932. Write for our attractive proposition today.

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THE BROWN CORP., 615 Bellevue Ave., Syracuse, N.Y.

Equipment and Compressor sales go together. Sell both on one contract.
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Manufacturers of Refrigerated Display and Storage Equipment

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QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

The CHIEFTAIN line represents precision manufacture and proven service, and is designed for all domestic and light commercial applications.

Sizes range 1/6 to 3/4 HP.

Write for prices.

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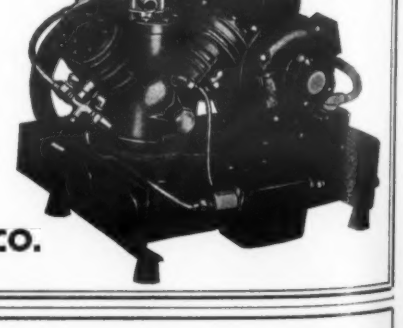

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for Commercial Use

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MACHINE CONSTRUCTION expert and refrigeration technician, at present employed in Germany as technical manager of a machine factory, specializes in electrical refrigeration installations for technical purposes, is looking for a position abroad. Speaks German and English. Write: WALTER REICHSFELD, Wien V, St. Johanngasse 18—Germany.

ENGINEER, 10 years' experience in design and development of automatic absorption machines. Air and water cooled, continuous and intermittent types. Available July first. Write Box 1052, Air Conditioning & Refrigeration News.

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DISTRIBUTORS WANTED for newly developed, self-contained Midget display refrigerator. The only case listed for less than $300.00. All nationally advertised parts including twin-cylinder compressor. Just plug in and use. Well insulated; porcelain exterior and interior; three shelves. Size 40" wide, 52" high, 28" deep. Easy to sell wherever food is purveyed. Good discount to distributors. Write for literature. CONTINENTAL FOOD STORES EQUIPMENT CORP., 2697 Third Ave., Bronx, N. Y.

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WANTED FOR Cash 1,000 GE and Westinghouse defective units. All models. We want to rebuild these so as to have a stock on hand to take care of immediate shipments to our customers. Advise models you have and price. G & G GENUINE MAJESTIC REFRIGERATOR AND RADIO PARTS SERVICE, 5801 Dickens, Chicago.

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LARKIN BEER Coolers—30 repossessed Larkin dual control beer coolers. All models from 2 to 5 beer lines. Mostly 4 beer and 1 water models. All in perfect operating condition, repainted and reconditioned. Original list $169.00 . . . Price $30.00 each, net cash, F.o.b. TRILLING & MONTAGUE, 24th & Walnut Sts., Philadelphia, Penna.

ISOBUTANE highest quality. Send your cylinders for refill. Price in lots of 100 lbs. 60¢, 80 lbs. 65¢, 50 lbs. 90¢. Smaller lots $1.00 per lb. STANDARD REFRIGERATION CO. OF PITTSBURGH, 1148 Dohrman St., McKees Rocks, Pa.

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Oil Burner — Stoker
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INSTANTANEOUS
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THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
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DOMESTIC CONTROLS repaired: Ranco pencil $1.75, Ranco box $2.00, General Electric $2.00, Tag $2.00, Cutler-Hammer $2.00, Penn $2.00, Bishop Babcock $2.50, Majestic $2.50, Penn magnetic $2.50, G. E. Frigidaire $2.50. In business over 20 years. Our name is our guarantee. UNITED SPEEDOMETER REPAIR CO., INC., 436 West 57th Street, New York City.

CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. Any bellows operated device repaired. HALECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

GENERAL ELECTRIC and Westinghouse hermetic units rebuilt. Guaranteed unconditionally for one year and returned to you refinished like new. Units are entirely disassembled in our large modern shop, tested through every step of production during rebuilding with the most complete test equipment for accurate work, then subjected to exhaustive running tests under actual operating conditions. Each unit measures to exacting standards after rebuilding. Prices $30.00 on General Electric DR-1, DR-2, and Westinghouse; $35.00 on General Electric DR-3. Quotations furnished on other models. Quick service—guaranteed work. REFRIGERATION MAINTENANCE CORP., 365 East Illinois St., Chicago, Ill.

100% SATISFACTION GUARANTEED—Hermetic rebuilding service. G.E.—Westinghouse—Majestic—U. S. Hermetic—etc. Our success in rebuilding sealed units is founded on these facts—10 years in the refrigeration industry—5 years' concentrated effort on hermetically sealed units. Customers in 37 states had hermetically sealed units rebuilt or exchanged by us in the past year. Complete factory equipment for precision rebuilding. One year guarantee on all rebuilt units. Exchange service available on most makes and models. Write for prices and descriptive literature. REX REFRIGERATION SERVICE, INC., 2226 S. State St., Chicago, Ill.

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BUSINESS OPPORTUNITIES

OPPORTUNITY FOR interested party or concern able to promote a patented device for controlling air movements in any make of refrigerator, or on any type of coil. When, where and how needed. Address Box 1051, Air Conditioning & Refrigeration News.

I WOULD like to get in touch with a manufacturer interested in manufacturing an air conditioning unit, patent applied for. A compact machine, completely automatic, with all the essentials of air conditioning for summer or winter. Can be manufactured at a small cost. Would consider selling patent outright or on royalty basis. T. A. MILHOLLAND, 1524 Peyton St., Little Rock, Arkansas.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

QUESTIONS

Seeks Maker Of Malted Freezer

No. 3259 (Service Company, Richmond, Va.)—"We note in your issue of March 23 an article regarding the Frozen Malted Machine Co. putting out a new type of freezer.

"As we cannot locate this company in New York, we would like you to advise us if you have the P.O. address of this company."

Answer: Address the Frozen Malted Machine Co. at 43 East 20th St., New York, N. Y.

Data On 'Utility Desert Kooler'

No. 3260 (School, Montana)—"In a recent issue of your publication, REFRIGERATION NEWS, there is an article dealing with the Utility Desert Kooler, which is manufactured by the Utility Fan Co. of Los Angeles.

"Please send me this issue or two or three issues (one copy each) which may describe this device or give any evaluation of it as a practical, economical method of refrigeration."

Answer: This article concerning the Utility Desert Kooler was published in the March 23 issue of the NEWS.

Companies Repairing Hermetic Units

No. 3261 (Distributor, Louisiana)—"There is a company located either in Chicago or Kansas City that reconditions General Electric Monitor Tops. Could you give us this address?"

Answer: The following companies repair and recondition hermetic units:

Rex Refrigeration Service, Inc.
2226 S. State St., Chicago, Ill.

G & G Parts Service Co.
5801 Dickens Ave., Chicago, Ill.

Allied Refrigeration Products Co.
1947 Flushing Ave., Brooklyn, N. Y.

American Refrigerating Engineers, Inc.
2257 Silverton Ave., Chicago, Ill.

Federal Refrigerator Corp.
57 E. 25th St., New York, N. Y.

Wants Calculator For Conditioning

No. 3262 (Engineer, Connecticut)—"Will you please tell me where I can obtain the Air Conditioning Calculator? I would also like to know the price. The calculators were shown in the AIR CONDITIONING & REFRIGERATION NEWS of May 4, 1938. I have written to Calculator Specialties Co., Chicago, three weeks ago, but as yet, I have not received any information from them."

Answer: The street address of this company is 122 S. Michigan Ave., Chicago. If you write to this firm at the street address and fail to get any reply, you might write to B. A. Johnson, c/o People's Gas, Light & Coal Co., Chicago, Ill. Mr. Johnson was the originator of the calculator.

Code On Comfort Air Conditioning

No. 3263 (Mfg., New York)—"Will you please forward to us at once one copy of the Code of Minimum Requirements for Comfort Air Conditioning mentioned in AIR CONDITIONING & REFRIGERATION NEWS of March 30, 1938."

Answer: This code was published in full in the April 6 issue of the NEWS.

Address Of Airite Cream Whipper

No. 3264 (Manufacturer's Agent, Georgia)—"In your March 23 issue I have noted a write-up on the new cream whipper being manufactured by Airite Mfg. Corp., and marketed thru Airite Sales Corp.

"I have written both of these concerns and the letters were returned. Please have this concern contact me with the view of my handling their products in the southeastern states."

Answer: Write to the Airite Sales Corp., 541 New Center Bldg., Detroit, for all information concerning their product.

Charging Cylinder With Graduated Gauge

No. 3265 (Parts Jobber, North Carolina)— "We are interested in the new type of gas transfer as shown in your May 25 issue and would like to know where a charging cylinder with graduated gauge, holding say 10 pounds may be obtained."

Answer: Write to the Prest-O-Lite Co., 30 E. 42nd. St., New York City or to the Pressed Steel Tank Co., 6637 W. Greenfield Ave., Milwaukee, Wis. for information as to where such a cylinder may be obtained.

Number of Schools That Teach Air Conditioning

No. 3266 (Research Bureau, New York)—"May we ask your advice with regard to an inquiry we have received from one of our correspondents? It reads:

"'It happens that I am presently engaged in the preparation of a complete survey of schools and any other kind of educational media which are teaching Air Conditioning. I would appreciate it if you could furnish me with any data you may have at your disposal on this subject, especially the number of schools containing air conditioning courses in their curricula, rates, subjects, and if possible whether they have shops for actual experiments. Also any other educational agencies besides schools which are engaged in teaching air conditioning?'

"Would it be possible for you to give us any information for this inquirer?"

Answer: Contact Dr. J. F. Noffsinger, Director, National Home Study Council, 839 17th St., N. W., Washington, D. C. for information on number of schools teaching air conditioning.

Information On Dairy Products Exposition

No. 3267 (Mfg., Michigan)—"I understand that there is a Dairy Products Exposition held in Cleveland towards the end of October. We have also heard a rumor that some of our competitors are exhibiting at this show, and although we never have, as there didn't seem to be any great need for it from our angle, it is possible that we might do so this time. Can you tell us where we can get the complete information on it? Where is their headquarters and who allots the space?"

Answer: This exposition is put on by the Dairy & Ice Machinery & Supplies Association, 232 Madison Ave., New York City, you should contact them immediately as space reservations for this show are generally made several months in advance of the opening.

Seeks Supplier Of New Refrigerant

No. 3268 (Service Co., New York)—"As one of your subscribers, we are taking the liberty of asking you the following question: Kindly advise where we can obtain F-114 Refrigerant which is a new refrigerant used by the Frigidaire Corp.

"We are making this request inasmuch as we are an independent refrigeration service company."

Answer: Write to the Kinetic Chemicals, Inc., 10th & Market Sts., Wilmington, Del. for information as to where this refrigerant may be obtained.

Phelps Heads Westinghouse Purchases & Traffic

PITTSBURGH—Andrew H. Phelps has been appointed general manager of purchases and traffic for Westinghouse Electric & Mfg. Co., succeeding T. J. Pace, who has been appointed assistant to the vice president in charge of sales, George H. Bucher, president of the company, has announced.

Mr. Phelps joined the firm in January, 1937.

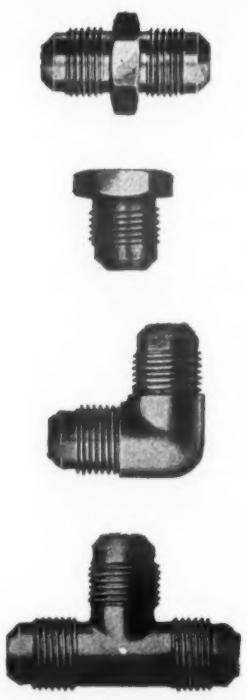
Columbus Good Housekeeping Adds York Cooling Line

COLUMBUS, Ohio—Good Housekeeping Shop, 180 S. High St., has added the York line of commercial and portable air-conditioning units to its existing lines of appliances. F. P. Boyland is president.

THE BUYER'S GUIDE

REFRIGERATION and AIR CONDITIONING PARTS*

The HARRY ALTER CO., 1728 SO. MICHIGAN AVE., CHICAGO, ILL.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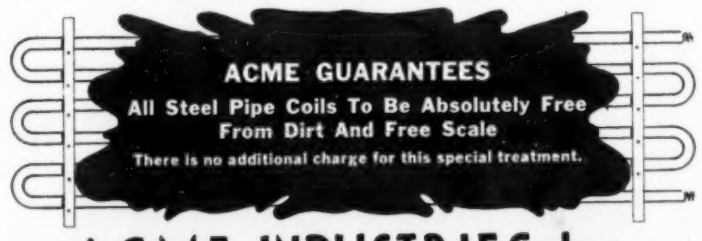
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